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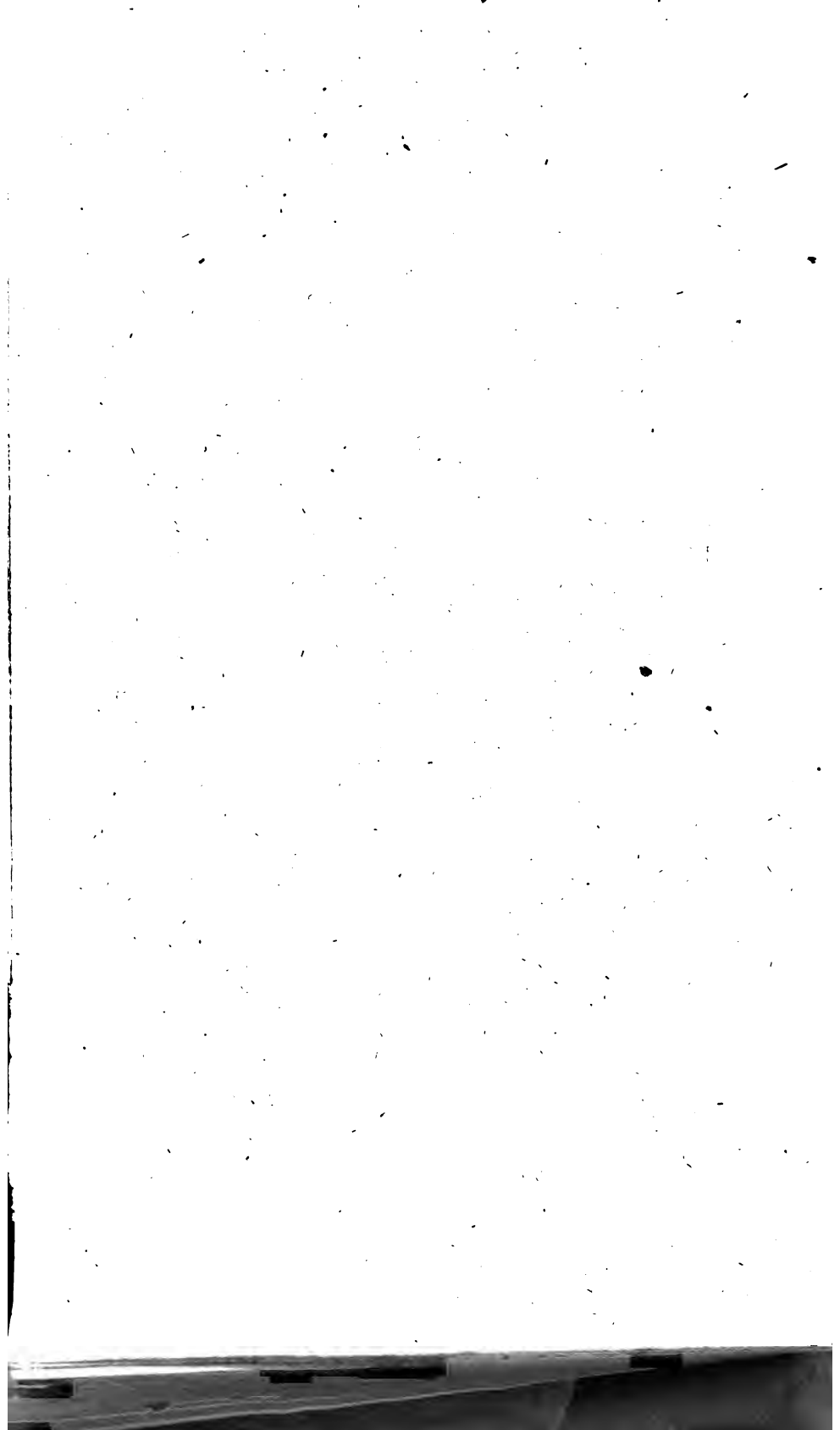

THE RURAL ECONOMY OF GLOCESTERSHIRE;

INCLUDING ITS

DAIRY:

TOGETHER WITH THE

DAIRY MANAGEMENT

OF

NORTH WILTSHIRE;

AND THE

MANAGEMENT

OF

ORCHARDS AND FRUIT LIQUOR,

IN

HEREFORDSHIRE.

BODLEIANA BIBLIOTH

BY MR. MARSHALL.

SECOND EDITION.

IN TWO VOLUMES.

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1796.

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ADVERTISEMENT.

BY MY PRACTICE in SURREY, I became acquainted with the AGRICULTURE of the *southern* counties. By my residence in NORFOLK, that of the *eastern* quarter of the kingdom was rendered familiar. By passing in YORKSHIRE the early part of life, by visiting it repeatedly, and finally reviewing it, analytically, that of the *northern* quarter became strongly impressed on my mind. But, when I left Yorkshire, in 1783,* I was as much unacquainted with the practice of the *western* counties, as if I had been a stranger to the general subject.

Having, however, remarked, in the widely differing practices of the three distant

* See advertisement to RURAL ECONOMY of YORKSHIRE.

countries I had seen, the various means of obtaining the same object, and the varying methods of conducting the same operation, I was desirous to become acquainted with the practice of the fourth quarter.

I had other motives to it than curiosity. For though I had yet no hope of executing my plan, on the broad basis I have since entered upon, I nevertheless had my reasons for wishing to be possessed of a general knowledge of the Rural Practices of the kingdom, at large. Beside, in Norfolk, I had made an essay in the art of manufacturing CHEESE, and I was desirous to become master of it. The management of FRUIT LIQUOR, too, was a subject, which, being no where else to be studied, was, of course, a farther inducement to my visiting the western quarter.

GLOCESTERSHIRE, I found, was the only district, which could furnish me with the requisite information. Therefore, in the

wane of the summer of 1783, I came into this county; and, agreeably to the plan originally proposed,* took up my residence in a farm house,—near the center of the vale of Glocester: where, and in the vale of Berkeley, I remained, until I had exceeded my expectation, with respect to the manufacturing of cheese, and had obtained a general idea of the rural affairs of the district, adequate to the purpose I then had in view.

But my Register, in this case, as in that of Yorkshire, was not sufficiently finished, for public inspection. Nor was it, indeed, sufficiently full, to bear the title I wished to give it. My observations had been confined to one season of the year: whereas, to gain a complete knowledge of the rural management of an extent of country, it is proper that its several departments should pass under the eye, in every season.

* See RURAL ECON. of NORFOLK. Address, &c.

Therefore, in the beginning of April last, immediately on the publication of the RURAL ECONOMY OF YORKSHIRE, I returned, without loss of time, into GLOCESTERSHIRE: where, and in its neighbouring districts, I have remained a further time, of somewhat more than twelve months: a period which has been appropriated, solely, to the work which I am now offering to the public.

IN A PREFATORY ADDRESS, affixed to the RURAL ECONOMY OF NORFOLK, I endeavoured to explain the PLAN OF THE WORK, which I was then entering upon; and hoped that I had left no ground for misapprehension. Indeed, it appeared, to my own mind, so simple and selfevident, as not to be easily misunderstood.

Nevertheless, from a general OBJECTION which I understand has been made against it, there is some reason to suspect, that I have fallen short in my explanation.

The objection held out is, "that the same subjects are treated of in YORKSHIRE as in NORFOLK.

To answer this as an *objection* is impossible: for had it been put, "that *nearly* the same subjects are treated of in Yorkshire as in Norfolk," the position would have been fully granted: as being perfectly consonant with the principle on which the plan is raised. It is, indeed, one of the best evidences that can be offered in its favor; inasmuch as it shows the PLAN OF THE REGISTER to be such, as, *in its full extent*, to admit, under the several heads, every idea relative to the subject: for, similar as the heads really are, in the two specimens already given, I found not, in either district, a fact belonging to the whole circle of rural affairs, which would not have fallen aptly under them.

The OBJECTS and OPERATIONS of HUSBANDRY, are, in *number* and *species*, the *same*, or *nearly the same*, in every depart-

ment of the kingdom. But the methods of obtaining the objects, and of performing the operations, are infinitely various. To catch such VARIATIONS, whenever they are sufficiently marked, whether with excellency or defect, is one of the objects of the plan I am now executing. Another is to give *practical descriptions* of such PARTICULAR OBJECTS and OPERATIONS, as are confined to particular districts. And, generally, to register the EXCELLENCIES and DEFECTS of the SUPERIOR CLASS of PROFESSIONAL MEN, in each department, and in every branch of the general subject.

By thus adducing in each station the valuable ideas it is possessed of, on rural subjects; and by arranging those of different stations, in registers formed on the same, or nearly the same plan; the different modes of conducting, any particular branch of management, may be referred to, and the several practices be compared. Consequently, in the completion of the

plan, may be seen the various practices of the kingdom, relating to any individual subject.

An art so extensive, and in many things so abstruse, as that of AGRICULTURE, must remain in a state of great imperfection, until the leading facts belonging to it, which are already known, be reduced to a state of reference. To raise schemes of IMPROVEMENT, public or private, before this be effected, must be an act of improvidence, similar to that of setting about the study of chemistry, or any other branch of philosophy, by experiment, without having previously become acquainted with the facts that are already ascertained. A man, thus employed, might spend a lifetime of ingenuity, without bringing to light a single fact, which was not intimately known before he began.

Such is the LEADING PRINCIPLE, the MAIN OBJECT, the SUBSTANCE of the plan. But this, as other SUPERSTRUCTURES, re-

quires a GROUNDWORK. Rural economics are founded in NATURE: much of the art depends upon climature, situation, soil, and a variety of natural circumstances. Hence, not only a GEOGRAPHICAL DESCRIPTION, of the district under survey, becomes requisite; but the THREE KINGDOMS OF NATURE, so far as they are intimately connected with the subject, require to be examined and described with SCIENTIFIC ACCURACY.

Nor are these the only requisites. The work, before it be fit to meet the PUBLIC eye, requires the finger of art. It is necessary that every part should be rendered perspicuous. The excellencies, not being sufficiently evident, perhaps, may require to be *relieved*; and the defects to be *brought out*, and shown in their naked deformity; that their impressions may be the stronger and more lasting.

Nor does the labor end, here. In carrying on a work of this nature, the mind

becomes spontaneously employed, in drawing PRACTICAL INFERENCES; and, perhaps, in FILLING UP DEFICIENCIES, with PRACTICAL IDEAS, which have been collected, incidentally, and which, being nowhere on record, might be lost to the general design, if not laid up in this manner.*

If the ideas, thus offered by the reflection, do not appear, to the judgment, to be sufficiently ascertained, to become evidently useful, in promoting the general intention of the work, they are, with other unascertained ideas, arising to the

* It may be proper to remark, here, that (through various motives) the rural economy of Yorkshire contains a greater number of these FUGITIVE IDEAS, than either the Norfolk or the present volumes; which, nevertheless, have their respective shares. They are frequently thrown into the *didactic* form; as being the most concise, and the most *practical*.

1796. See the Advertisement to the second edition of the Yorkshire, for the motives above alluded to.

observation in the district immediately under survey, either thrown out as HINTS, to those who have leisure to ascertain them, or are ENTIRELY REJECTED.

The RURAL ECONOMY of YORKSHIRE, if duly examined, will be found to be executed on these principles. Thus, to speak in reply to the *objection*, which has given rise to these explanations, under such heads, whether they include general operations, or ordinary objects of culture, as were amply treated of in Norfolk, DEVIATIONS only, whether they arise from custom, situation, or soil, are brought forward. But, where a crop, or an operation, not cultivated, or performed in Norfolk, arises, it becomes a *fresh* subject; and an additional division or subdivision is, of course, opened for its reception; and every thing deemed useful, respecting it, registered. Again, where a crop, or an operation, common to Norfolk, is not found in

Yorkshire, the head or compartment of the Register, which received it, in the former, is, of course, dropped in the latter.

If, in the rural economy of Yorkshire, I had described the dibbling of wheat, for instance, or, in the rural economy of Norfolk, the cultivation of the rape crop, or had even instituted heads for these subjects, I should, indeed, have rendered my work liable to objection.

But, because I had described the general management of soils and manures; and the general operations of sowing, weeding, and harvesting, the cultivation of wheat and barley, and the management of cattle and sheep, as practised in Norfolk, were these subjects to be passed, without notice, in describing the practice of Yorkshire! Or, because a writer, on geography, has described the mountains and rivers of France, for instance, is he, in giving a description of Spain, to pass over the mountains and rivers unnoticed!

But ill founded as that objection (if it will bear the name) evidently is, the making of it implies a degree of dissatisfaction, arising, it would seem, from a misapprehension of the plan of the work; and I am desirous to render it, were it possible, free from disapprobation.

GLOCESTER, May, 1789.

ANALYTIC TABLE

OF

CONTENTS

OF THE

FIRST VOLUME.

Introductory Remarks.

Countries are characterized by their Rivers, 1.

This Department of the Island receives its leading Character from the Severn, 2.

The Vale of Severn described, 3.

The District of the Station is confined to the lower Division of this extended Vale, 5.

The popular Divisions of the County, 6.

The most eligible Department chosen and divided into Districts, 7.

DISTRICT THE FIRST.

THE VALE

OF

GLOCESTER, &c.

A GENERAL VIEW of this DISTRICT, 8.

Preliminary Remarks.

I. Its Outline described, 9.

II. Its Extent estimated at 100 square Miles, 10.

III. Its Surface a Plain, beset with Hillocks, 11.

IV. Its Climature is *above* its Latitude.
A Remark on Climature, 11.

V. Its River is the Severn, 11.
A COMMISSION of SHORES, recommended, 12.
Note on the word *Shore*, 11.
Note on the EMBANKMENT of the Severn, 12.

VI. The Soil is chiefly a deep Loam, 13.

VII. Its Subsoils mostly retentive.

VIII. The Roads of the Vale are shamefully kept, 14.

IX. Townships, 15.
General Remarks on ALEHOUSES, 15.

X. The State of Inclosure, 16.
Tradition respecting Common Fields, 17.
Conjectures on their intermixture.

XI. The present Productions of the District, 18.

THE RURAL ECONOMY OF THIS DISTRICT.

DIVISION THE FIRST.

LANDED ESTATES, AND THEIR MANAGEMENT.

SECT. I. Estates and Tenures, 19.
SECT. II. General Management, 20.
I. The Tenancy in Use.
A good Regulation respecting the Lengths of Leases, N. 20.
II. Rents prevalent, 21.
III. Covenants observable.
IV. Receiving Rents.
V. The Time of Removal is Ladyday, 22.
VI. Form of a Lease in Use.
Note on Tenants planting Willows, 26.
Note on Tenants protecting Plantations.
Note on the Time of Removal, 29.

SECT. III. Farm Buildings, 30.

I. Materials of Building.

Walling Materials.

Lime, and Burning, 31.

Analysis of the St. Vincent's Stone.

——— Westbury Stone, 32.

Note on Lime regaining its Air.

——— Cotswold Stone, 34.

Method of burning.

Note on the Tops of Limekilns, 35.

Timber in Use, 35.

Covering Materials, 36.

Flooring Materials, 37.

II. Farmeries, 37.

Barns of the Vale.

A Monastery Barn noticed, 38.

A modern Barn described.

Barn Floors.

Calf Stage and Bullock Shed, 39.

Cider-mill house.

Stack Stages.

Yard Fences.

SECT. IV. Field Fences, 40.

Species.

Instance of a luxuriant Hedge on bad Land.

The Ditches of the Vale are ineffective.

Temporary Fence, 41.

The Gate in Use.

Stiles made to open for Carriages.

Note on hanging Gates.

SECT. V. Hedgerow Timber, 42.

Species.

Treatment, 43.

Some large Trees noticed.

DIVISION THE SECOND.

WOODLANDS AND PLANTING.

SECT. I. Woodlands, 44.
Instance of a common Wood.
——— lopping Wood Timber.
Reflections on this Practice, 45.
——— of Wood paying better than Farm Produce.
Coppice Wood and Management.
Hint on laying out Estates, into Woodlands and Farm Lands, 46.

SECT. II. Planting.

DIVISION THE THIRD.

AGRICULTURE.

SECT. I. Farms, 48.
Characteristics.
Size of Vale Farms, 49.
Plan of Farms.

SECT. II. Farmers, 50.
Reflections on the rising Generation of Husbandmen, in this Island.

SECT. III. Workmen, 51.
Their Wages, *in Money*, low.
Their extravagance, *in Drink*, shameful, 52.
Remarks on this Impropriety.

SECT. IV. Beasts of Labor, 54.
Horses, at present, solely in Use.
A Trial of Oxen recommended, 55.
The present Waste of Horses censured, 56.

SECT. V. Implements, 57.
The Glocestershire Waggon described, and recommended.

SECT. VI. Seasons, and the Weather, 59.
The Progress of Spring, 1788.
An extraordinary Instance of partial Drought.

SECT. VII. Plan of Management, 62.
I. The Objects of the Vale Husbandry.
The arable Crops at present grown.
Note on Turneps, in a Grassland, Vale District, 63.
General Remarks on the arable Management of the Vale.
II. The course of Practice, 64.
The Commonfield Succession is now changing.
Instance of cropping Commonfields every Year, 65.

SECT. VIII. Soils, and their Management, 66.
I. The Species of Soils.
II. The Soil Process, 67.
1. Breaking up Grasslands.
2. Quantity of Tillage usually given, 68.
Method of Fallowing, 69.
The foul State of arable Lands.
An ingenious Way of propagating Weeds, 70.
State of the "every Year's Lands,"
The Loss arising from a Want of Tillage, 72.
GENERAL REMARKS on FALLOWING, 73.
3. Laying up Ridges, 75.
The extraordinary Height of the Ridges of the Vale.
Reflections on their Origin, 77.
Tradition respecting them, 78.

Their disadvantages in a State of Aration, 79.
Their advantages in a State of Grass.
On the Propriety of reducing them.
Observation on the Effect of Air, and Culture on Soil, 82.
An Instance of Practice in lowering high Ridges, 83.
Practical Hints on this Subject, 84.

SECT. IX. Manures, 86.

The Estimation of Manure is guided, in some Degree, by the Nature of a Country.
The Price of Town Manure is a Criterion of the State of Husbandry, N. 86.
Its Prices, in the Vale.
The Garden Grounds of Evesham raise the Price, in that Quarter, N. 87.
A Pasture Land District requires less extraneous Manure, than one from which Corn or Hay is carried.
Dung is the chief Manure of the Vale.
The Marl of Apperly analyzed, 88.
Lime is not in Use, as a Manure.
Its Use recommended for Trial, 89.
The Management of Dung, here.

SECT. X. Semination, 90.

The Practice of the Vale commendable.
Opinion, and Reflection, on sowing fresh and stale Ground.

SECT. XI. Corn Weeds, and Hoing, 91.

A CATALOGUE of CORN WEEDS, 92.
Note on the cultivated and the wild Oat.
On hoing Crops in General, 98.
REMARKS on this Practice, 99.

SECT. XII. Harvest Management, 101.

The Mode of conducting Harvest Work.
The Wages of Harvest Men.
The Victualling of Harvestmen.
An admirable Regulation, in this.
The Hours of Work, 102.

SECT. XIII. Farmyard Management, 103.
Barn Management.
Method of Thrashing.
Winnowing, 104.
Expenditure of Chaf.
Yard Management.
A Strawyard Lobby common.

SECT. XIV. Markets, 105.
Those of the Vale enumerated.
General Observations on MARKET PLACES.
Those of the Vale lately reformed.
A general Reform requisite, 106.
This interesting subject discussed.
The Utility of Fairs, 108.
The evil Effect of Tolls, 109.
All Fairs and Markets should be free.
COUNTIES should have the Charge of FAIRS and MARKETS, 111.

SECT. XV. Wheat, and its Management, 112.
I. The various Species described.
II. The ordinary Succession, 113.
III. The Soil Process, 114.
Instances of breast-plowing Bean Stubbles for Wheat.
Note on Bean Stubble as a Fuel.
An Idea of its harboring Snails, &c.
IV. Seminating, 116.
The Time of Sowing is very late.
General Remark on the TIME of SOWING WHEAT.
The Quantity of Seed small, 117.
Instances of setting Wheat, N.
V. Hoing Wheat minutially described.
1. The Number of Hoings, 119.
2. The Season of Hoing.
3. The Dimensions of the Hoe, 120.
4. The Method of Hoing, and the Persons employed, with Remarks.
5. The Price of Hoing, 123.
6. The Advantages enumerated, 124.

VI. Harvesting Wheat, 126.
Bound in very small Sheaves.
General Remark on the SIZES of SHEAVES, 127.
Stubbles are generally mown, 128.
VII. Produce of Wheat—very low, 129.
This Circumstance examined, and a CHANGE of MANAGEMENT urged.

SECT. XVI. Barley, 132.
The Quantity grown.
The Species is the longeared.
Its Cultivation.
Barley is the cleansing Crop of the every year's Lands.
General Remarks on the BARLEY FALLOW, 133.
Harvesting Barley, 135.
Markets.
Produce by the Acre.
The Quality of the Vale Barley.

SECT. XVII. Oats, 136.
Not a Crop of the Vale of Glocester!
A popular Reason assigned for it, N. 136.
This extraordinary Fact attempted to be accounted for, more satisfactorily, 137.
A fair Trial of the Oat Crop suggested,

SECT. XVIII. Pulse, 140.
The leguminous Crops are cultivated, here, with singular good Management.
I. The Species of Pulse cultivated, 141.
II. The Succession uniform.
III. Soils adapted to the several Species.
IV. Tillage.
V. Manure.
VI. The Semination of Pulse.
1. The Time of setting.
2. The Method of setting particularized.

3. Quantity of Seed, 145.
4. Price of setting.
5. Covering the Seed, 146.

VII. The growing Crop, 146.
Harrowing sometimes used.
Time of the first hoing.
Method of hoing.
Dimensions of the Hoe, 147.
The second hoing.
Hand weeding.
General Remarks on HOING PULSE CROPS.
More essential to Pulse than to Grain, 148.
Obvious Reasons assigned.
Rank Beans should be thinned, 149.
The Prices of hoing.
An Instance of HOING with an ASS, N.
Well adapted to free Soils.

VIII. Harvesting Beans, 150.
The Method varies with the Crop.
Reaping Beans described.
Setting them up, in "Hackles," particularized, 151.
Glean after the Waggon, in carrying.

IX. The Application of Bean Halm, 153.
Thrown before Horses, or
Burnt for Pot-ash!

X. Markets for Beans.
Many sold to the Guinea Traders.

XI. The Produce of Beans, by the Acre.

SECT. XIX. Cultivated Herbage, 154.

I. Temporary Leys.
The Produce of Clover excessive, 155.
The Advantage of changing the Crop, from Corn to Herbage.
Hence an Advantage of inclosing open Lands, 156.
Seed Clover is thrashed in frosty Weather.

II. Perennial Leys, 157.
Their Cultivation ill understood in the Vale.
Foul "Hay Seeds" usually sown, 158.
An Instance of successful LEYING, after a TWO YEARS' FALLOW.
Instance of a Miscarriage, 159.
The Nature of RAYGRASS discussed.
Observation on it in the Vale.
Collecting the native variety recommended, 164.
Its forcing Quality understood, here.
Its Character, in different Districts, accounted for.
On Leying with white Clover and Trefoil, only, 166.
General Remarks on LEYING.
A Summer Bladegrass wanted, 167.
But may be dispensed with.
An Apology for these Remarks, 168.

SECT. XX. Natural Herbage, 170.
I. Waterformed Lands.
Their Application.
Note on common Meadows.
Their present Elevation of Surface, 171.
The Isle of Alney forms a Part of these Lands.
The Soil and Subsoil of these low Lands.
That of the Isle of Alney examined.
The Color of these Soils, 173.
Conjectures on their Formation.
Further Remarks on the Isle of Alney, N. 175.
The Herbage of these Lands, 176.
A CATALOGUE of MEADOW PLANTS.
Note on the creeping Crowfoot, 178.
The Produce of these Meadows, 181.

II. Upper Grasslands, 181.
Their prevalency.
Their Soil, 182.
Examination of a rich Grassground,

The Herbage, 183.
CATALOGUE of UPPER-GROUND PLANTS, 184.
The Produce of these Lands, 189.

III. The General Management of Grass lands, 190.
1. Draining.
2. Clearing rough Grounds, 191.
3. Dressing their Surfaces, 192.
4. Weeding Grass lands, 193.
5. Manuring, 194.
6. Watering, 195.
A Remark on the Husbandry of the Vale, 196.

IV. The Objects of the Grassland Husbandry, 196.

V. Mowing Grounds, and their Management, 197.
1. Their Spring Management.
Time of shutting up,——with an EXTRAORDINARY PRIVILEGE respecting it, 198.
2. Haying fully treated of, 199.
Age of Cutting.
Method of Mowing, 200.
Making, 201.
Stacking, 202.
Remarks on the DEGREE of HEAT, 203.
Expenditure of Hay.
3. Aftergrass.
Time of putting Stock upon it.
REMARKS on this Point of Management, 205.

VI. Pasture Grounds, 205.
1. Spring Management.
2. Mode of Stocking, 206.
3. Summer Management.

SECT. XXI. Horses, 207.

SECT. XXII. Sheep, 208.

Their natural Element assigned them.
Undrained Vale Lands are destructive to them.
A Change lately made in their Management, here, 209.
Fatting Ewes and Lambs is the present Practice.
The varieties used in this Practice.
Some Folding formerly done.
But the Rot has cut off the folding Flocks.
An Opinion respecting the Rot of Sheep.

SECT. XXIII. Cattle, 211.

They are natural Inhabitants of a Vale District.
Their History in this Vale.
The native breed of the Vale.
The extraneous Breeds brought into it.
The Glocestershire Breed described.
Remarks on their Qualities, 214.

I. Cows and their Management, 215.

1. Procuring Cows.
The favorite Points, 216.
The Dimensions of a good Cow.
Remarks on Rearing Cows, 217.
Places of Purchase, 218.
Present Price of Cows, 219.
2. The Sizes of Dairies.
3. The Treatment of Cows.
Summer Management, 220.
Winter Management.
4. Application of Milk.
5. Disposal of Cows, 221.
Fatting them on the Dairy Farm is a simple eligible Trait of Management.

II. The Rearing of Cattle, 222.

The Number reared.

1. Calves.
Season of Rearing.
Milk given to them hot! 223.
Reflections on this Practice.
Other Particulars of Treatment.
CALF STAGES described, 225.
2. Yearling Cattle, 227.
3. Two-year-old Cattle.

III. The fatting of Cattle, 227.
There are two distinct Species of Grazing, in this District.
1. Fatting in the Yard, 228.
Food.
Description of Cattle, 229.
Places of Purchase.
Summer Management.
Winter Management.
Places of Fatting, 230.
Rodden Cribs described, N. 230.
Progress of Cattle, in Yards, 232,
Selling, and Proof, 233.
2. Stall Fatting, 233.
This is a new Practice in English Husbandry.
The Subject analyzed, 234.
1. The District and Soil, 235.
2. The Foods in Use.
Remarks on Oilcakes, 236.
Linseed Jelly has been tried.
A Mode of Preparation, N. 238.
A Suggestion respecting American Flax Seed, 239.
3. The Cattle fatted, 240.
Remarks on the Age of fatting Cattle.
Instance of OXEN, EIGHTEEN YEARS OLD, being fatted, and finished, without difficulty.
4. Places of Purchase, and favorite Points.
Remarks on the CRITERIONS of GRAZING CATTLE.
Qualities desirable in a Herefordshire Ox, 245.
Qualities exceptionable in the same,

5. Summer Management, 250.
6. Winter Management.
Ox STALLS of an extraordinary Construction, described.
An Improvement in the Watering Trough, N. 253.
A Variation of Construction, 254.

The Management of stalled Bullocks, 255.
A. The Proportion of Cattle to Hay, 256.
B. The Quantity of Attendance requisite.
C. The Season of fatting, 257.
D. The stated Meals, in Practice.
E. The Quantity of Cake to each Cattle.
The Method of breaking the Cakes, N. 257.
F. The Method of feeding with Hay, 258.
G. The Progress of Cattle at Oilcakes, and the length of Time usually given.
H. On turning stalled Bullocks out to Grass.

7. The Market for stall-fed Cattle, 260.
8. The Produce, in the Gross, and by the Week, estimated.
Remarks and Calculations on this Subject.

SECT. XXIV. The Dairy Management, 262.

Preliminary Subjects.
1. Managers, 263.
Their Qualifications, 264.
2. The Dairyroom, 265.
The Advantages of an outer Door.
Dimensions and Aspect, 266.
3. Utensils of the Dairy.
Enumerated and described.
Cheese Presses particularized, 271.
4. The Business of Milking, 272.
Hours of Milking.
Milkers.
Place of Milking, 273.
Manner of Milking.

I. Calves, 273.
Rearing Calves, 274.
Fatting Calves.
II. Milk Butter, 274.
Introductory Remarks.
1. Setting the Milk, 275.
The Heat at which it is set, 276.
The Depth in the Vessels.
The Method of Skimming.
Note on Milk Leads.
2. Preserving the Cream, 277.
Receptacles of Cream.
Management in the Jars.
Note on Coloring it.
3. Churning, 277.
Preparing the Churn.
The Atmosphere it is placed in, 278.
Attention during the Operation.
4. Manufacturing Butter, 278.
Utensils, and their Preparation.
The first washing, 279.
Salting, 280.
Note on Butter Milk.
Rewashings, 281.
Weighing.
Printing.
Note on a BUTTER GAUGE. 282.
5. Markets, 283.
The Towns of the Vale.
Packing the Prints for Market described, 284.
III. Cheese, 286.
Introductory Remarks.
The Subject divided, 287.
1. The Season of making, 288.
2. The Quality of the Milk.
3. Coloring, 289.
Probable Rise of the Practice.
Material of Coloring, 290.
Botanical Remark on ANNOTTA, N.
Method of Using it, 291.
The Expence of Coloring, 292.

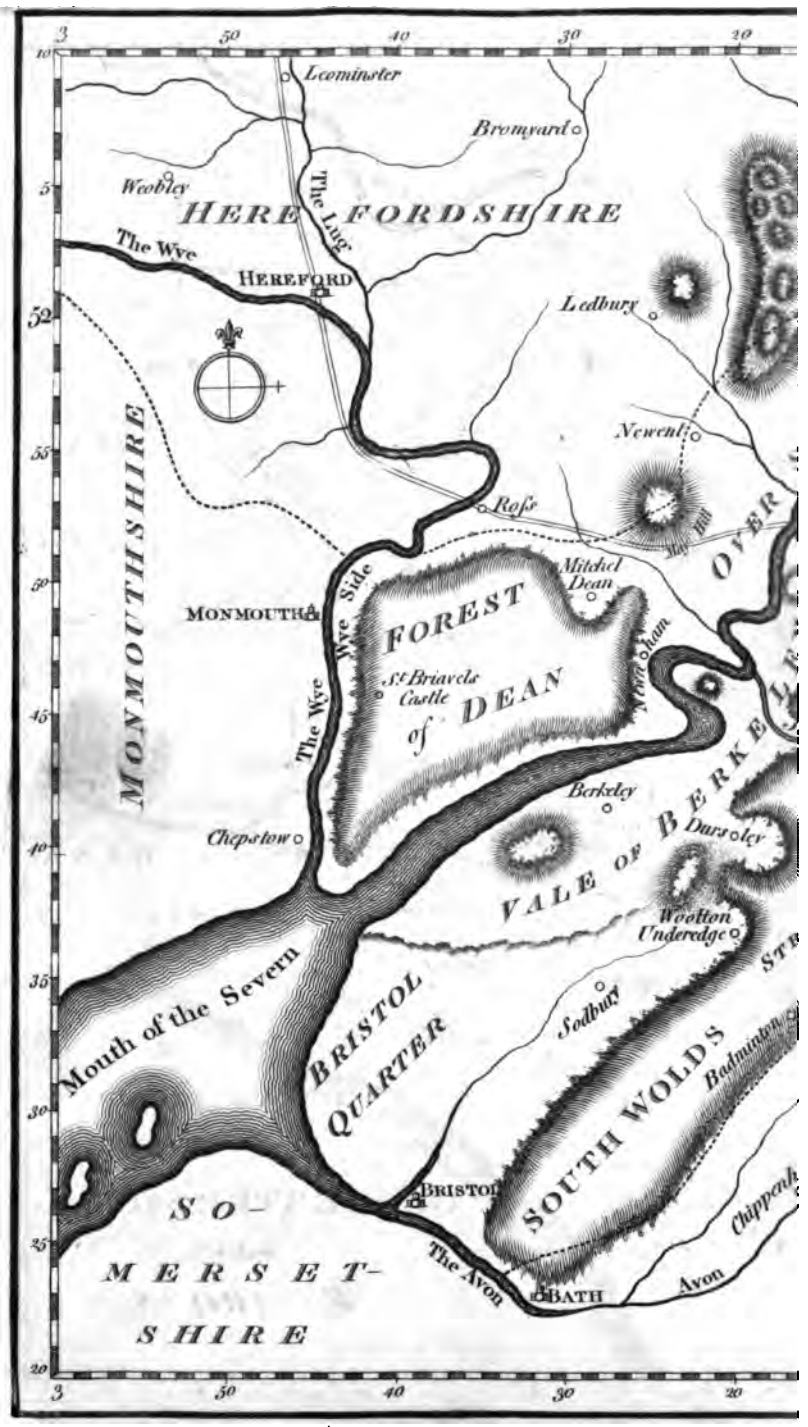
4. Rennet, or Coagulum, 293.
1. Curing the Vells.
2. Preparing the Rennet.
Various Methods described.
5. Running, or Coagulation, 295.
The Difficulty, and Mystery, of this Part of the Process.
EXPERIMENTS with the THERMOMETER, 297.
Evidences of its Use, 299.
6. Curd, and its Management, 300.
1. Breaking it, in the Whey.
2. Gathering and Draining the Curd.
3. Scalding the Curd, 302.
The Method pursued.
The scalding Liquors in Use, 303.
The Heat proportioned to the curd.
EXPERIMENTS on the Heat of the scalding Liquor, 304.
4. Vatting the Curd, 305.
The Method.
Note on the Cheeseboard, 306.
5. Spare, or surplus Curd.
Different Methods of Disposing of it, 307.
Vats of different Sizes requisite.
7. Cheeses, and their Management, 308.
1. Their Management in the Press.
Turning.
Salting.
Repressing, 309.
Time in the Press.
Note on SAGE CHEESE.
2. Management, on the Shelves, 310.
3. Cleaning the Cheeselings.
4. Management, in the Chamber, 311.
Preparing the Floor, 312.
Turning and Wiping.
Raising the blue Coat.
Time in Curing.
8. Markets for Cheeses, 313.
Times of Sale and delivery.
The Purchasers chiefly Factors.
Age delivered at, 314.
Treatment of swoln Cheeses.

Consumption.
Price of two-meal Cheese.
Note on Barton Fair, Glocester.
9. Whey Butter, 315.
Invariably made, in the Vale.
Its Estimation, here.
Setting the Whey for Cream.
Management, 316.
Price.

SECT. XXV. Swine, 316.
I. Breeds at present propagated.
II. Breeding, and purchasing, 317.
Glocester Market, for Swine, very large.
III. Food of Store Swine.
IV. Proportion of Swine to Dairy Cows.
V. Materials of Fatting, 318.
VI. Markets for Bacon.

LIST OF RATES
IN
THE VALE OF GLOCESTER, 319.

PROVINCIALISMS
OF
THE VALE OF GLOCESTER, 323.



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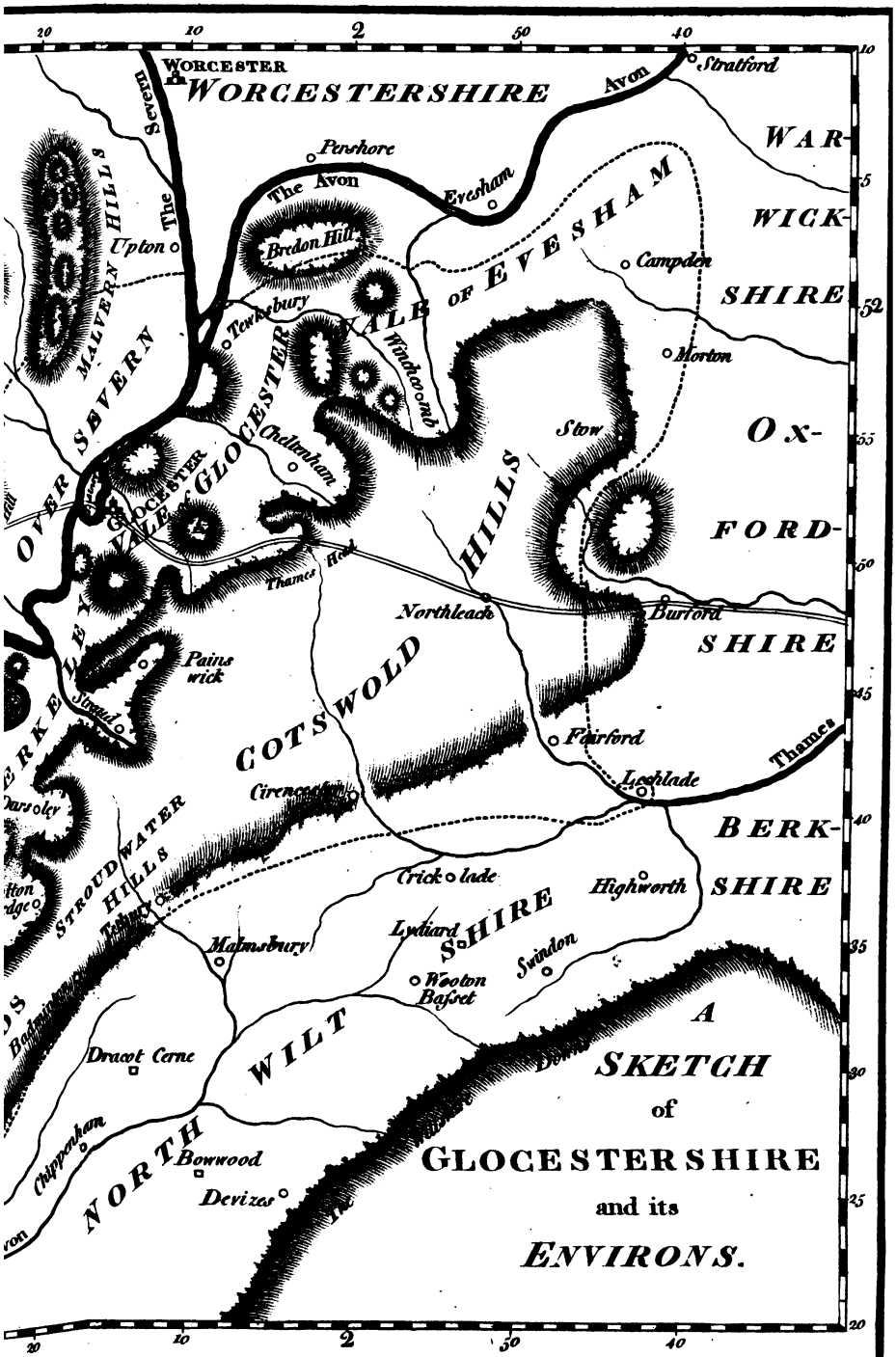

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THE

RURAL ECONOMY

OF

GLOCESTERSHIRE, &c.

COUNTRIES are characterized by rivers. Mountains are cleft to give vent to their various sources. Or we may say, and perhaps more philosophically, rivers receive their general character from countries. In whatever light we view them, it is sufficiently evident that, in most instances, they are strongly characteristic of each other. The fissures and dells spread open, and form a valley; the uniting rills form the branch of a river. The mountains bow as the fissures widen; and as the hills sink the valleys expand: at length uniting in one open vale; in whose lap the concurring branches form an accompanying river:

which, as it approaches the sea, widens into an estuary; whose immediate banks are marshes.

But rivers, as all nature's productions, are infinitely various. Each has its differential character.

The HUMBER (the first of British rivers) opens, from the sea, with an estuary disproportionately small. But its banks spread wide; in due proportion to the vastness of the vale, in which its numerous branches are collected,—and to the magnitude of the mountains and valleys, which give birth to them. The characteristic of the Humber and its accompaniments (its estuary apart) is *greatness*.

The SEVERN is marked by widely differing characters. Its estuary is singularly magnificent; forming a CHANNEL; not unfrequently, nor improperly, styled the SEVERN SEA; whose banks, on either side, rise from the richest marshes to lofty and most picturesque mountains. Europe, I believe, does not furnish another river entrance of equal grandeur.

These mountain banks approach; and the *channel* contracts with the clifts of Chepstow and Aust; but the *estuary* continues;

and the country, above, opens into an extended vale, which widens as its length increases; until it receives the county of Worcester, almost entirely, within its outline: then contracts, and closes with the hills of Shropshire and Staffordshire. A vale, which in *richness* and *beauty*, has no where, perhaps, its equal.

Its banks, to the west, are formed by the forest of Dean, Mayhill, the Malvern hills, and the hills of Herefordshire, and Shropshire: to the east, by the Stroudwater and the Cotswold hills, and by rising grounds on the border of Warwickshire; closing with the Lickey and the Clent hills.

By reason of hillocks, scattered on the area of this expanse, its entireness is not evident: Bredon hill, with some prominent knolls, strewed at the point of the Cleeve hill (a promontory of the Cotswolds) cross the view, and partially divide the vale into three districts: Worcestershire; the vales of Glocestershire: and the vale of Evesham; which is divided, in a singular manner, between the two counties. But remove these hills, and the hillocks near Glocester,—the whole forms one continued unbroken vale, which accompanies the Severn, from the

union of its principal branches, to its conflux with the sea.

Probably, however, not having been seen in this light, it has had no general name assigned it. The vale of Evesham lays claim to some part of it; but to how much, has not, I believe, ever been settled. Were it necessary to assign it a general name,—TEWKESBURY, which is situated every way in its center, might well claim the honor of giving it.

The upper part of this vale, (its uppermost extremity excepted) though abundant in *riches* is not *picturable*. The idea of flatness is too predominant: its banks are comparatively tame; and its surface, though sufficiently broken, for the uses of RURAL ECONOMY, is too uniform, to give full effect to RURAL ORNAMENT.

Passing downward, its more finished scenery commences with the Malvern hills: from whence to the rocks of Chepstow, its area and its banks form one continuous scene of picturable beauty. A garden forty miles in extent. A grand suite of ornamental grounds, in nature's best style. Every part is pleasing. The banks are bold, happily varied, and partially hung with wood. The area, strewed

with hillocks, *fertile to the summits*, affords endless points of view; while the hillocks themselves are, in their turns, the cause of infinite beauty. The soil is every where rich, and mostly in a state of grass. The Severn here winding with unusual freedom; and the Welch mountains rising in happy distance. These features, well associated, give this passage of country a preference, in *beauty*, to every other this island possesses.

Glocestershire might well be styled the seat of picturesque beauty. It is equally a subject of study for the painter and the rural artist; not in the outline only, but in the detail: the Stroudwater hills, and the banks of the Wye, are full of secluded beauty.

It is this lower extremity of the Severn vale which falls within the district I have chosen for my present STATION. Not on account of its *beauty*; but by reason of its *situation*, with respect to the other stations I have fixed in; its *richness*; and the various *productions* it affords. Had it not been *singularly* characterized by natural ornament, I should not have detained the reader a moment on so *unprofitable* a subject. But the eye must be dim, and the heart be-

numbed, which can be insensible to the rural beauty of Glocestershire.

The popular divisions of the COUNTY are the *Vale*,—the *Cotswold hills*—the *Stroudwater hills*—the country about Bristol—*Berkley Hundred*—*Wye-side*—the *Forest of Dean*—and *Over-Severn*: the last a district, which, though it be divided only by the river, from what is properly understood by the *Vale*, differs from it very much in soil and management; both of which partake of those of Herefordshire. The Forest of Dean is a mere waste, which calls loudly for improvement, and the Wye-side little more than the banks of the river.

Among the eastern divisions, therefore, we must look for proper subjects of study, for RURAL information: and we find three of them entitled to notice. The vales of GLOCESTER and EVESHAM, as a rich vale district, equally abundant in grass and corn. The COTSWOLD HILLS, as an upland arable district. And the vale of BERKLEY as a grass-land dairy country.

The *Stroudwater hills* partake of the Cotswolds and the vale jointly.—A lovely plot of country: but not a proper subject of rural study; as being a seat of manufac-

ture. The southern extremity is various in soil and surface. The *Bristol Quarter* is a fine tract of country; but lies too near a populous town to be studied for general information. The *Southwolds*, a ridge of hill which joins the Stroudwater to the Lansdown hills,—is in soil, situation, and management, similar to the Cotswolds: the Stroudwater hills lying in a dip between them.

The vales of Glocester and Evesham,
The Cotswold hills, and
The vale of Berkley; as well as
North Wiltshire, and
Herefordshire; will be separately described.

DISTRICT THE FIRST.

THE VALE

OF

GLOCESTER, &c.

A GENERAL VIEW

OF

THIS DISTRICT.

THE VALE which accompanies the Severn, through GLOCESTERSHIRE, has a natural insection, which divides it into two districts, very different in produce and rural management. These districts, in distinction, I shall call the *upper* and the *lower* vale; or the VALE OF GLOCESTER, and the VALE OF BERKLEY.

The upper vale, in whole, or in part, is sometimes spoken of as belonging to the VALE OF EVESHAM—at present an *imaginary* district, of which no two men have the same idea. Some include, not only the Vale

of Glocester, but a principal part of Worcestershire within its limits! Its *natural* limits, however, are evident; and appear, from old maps, to have been formerly the received boundaries.

The VALE OF EVESHAM belongs to the AVON; as the vales of Glocester and Berkley do to the Severn: being included between the river and the Cotswold hills: expanding southward to Campden and Morton; and following the Avon eastward to Stratford: the town of Evesham being situated near the midway between its extremities: that is, near the center of the VALE OF AVON; at the farthest outskirts of the VALE OF SEVERN.

The town of Evesham stands in Worcestershire: but much of the vale lies within the boundaries of Glocestershire; and, in point of situation, climature, surface, soil, produce, and management, may be considered as a continuation of the vale of Glocester. The southern part of Worcestershire, likewise enjoys a similar situation and soil, and is subjected to a similar management.

I. THE VALE OF GLOCESTER is, in OUTLINE, somewhat semicircular: the Severn the chord, the environing hills the

floods, the rivulets are let into it by flood-gates; which give vent to them at dead water, and exclude the water of the river in times of floods.*

Near the banks of the Severn, an overflow of these rivulets may sometimes be irremediable; but the area of the district, in general, is placed, by natural situation, entirely out of the reach of surface water. Nevertheless, much of it is essentially injured by water lodging upon it, during winter and wet seasons. The rivulets are shamefully neglected; and the water ditches choked for want of timely scouring. A COMMISSION OF SHORES is evidently wanted in this district, to free it from the evils of superfluous water; one of the most ruinous enemies of husbandry; yet, by proper ma-

* SEVERN EMBANKMENT. This is not a *public* work; nor is it general; the meadows being in many places still left open. The intention of it is merely to secure the grass from being silted, and the hay from being swept away, by summer floods. The banks being low,—not more perhaps than two or three feet high,—the winter's floods surmount them; or, if raised higher, the water at that season is, I understand, sometimes let into the meadows, by sluices opened for that purpose; so that the meadows still receive a benefit from the floods.

nagement, it is, in general, the most easy to be overcome.

VI. The SOIL of this district is mostly a rich deep loam: fitted, by intrinsic quality, for the production of every vegetable, suited to its specific nature and the latitude it lies in. But by a redundancy of moisture it is chilled, weakened, and rendered much less productive than soils, which enjoy equal richness and equal depth, generally are. This is, in part, owing to a want of sufficient shores, and surface drains; and, in part, to the nature of

VII. The SUBSOIL, which accords with the theory above offered, with respect to climature; being, in general, singularly cold and full of water; especially towards the center of the vale; where it appears, in many places, to be composed of stone and clay, alternately, in thin strata. And, here, every stonepit is a well of limpid water. There are parts of the district, however, which enjoy a more genial foundation; especially round the towns of Glocester, Tewkesbury and Evesham: situations admirably well chosen. But no wonder; they were fixed upon, or raised into eminence, by the clergy; who, it is every where evident,

were judges of soil and climature. The whole district under notice has been strewed with monasteries, and other religious establishments.

VIII. The ROADS of the vale are shamefully kept. The Parish roads mostly lie in their natural flat state, with the ditches on either side of them full of water to the brim. The toll roads are raised (generally much too high) but even on the sides of these I have seen full ditches. It would, in principle, be equally wise to set a sugar loaf in water, by way of preserving it, as to suffer water to stand on the sides of roads, whose foundations are of an earthy nature. For so long as they remain in immediate contact with water, they never can acquire the requisite degree of firmness. The foundation is ever a quagmire; and the superstructure, if not made unnecessarily strong, is always liable to be pressed into it. Hence the deep, ditch-like ruts which are commonly seen in roads of this description. The road between Glocester and Cheltenham (now become one of the most public roads in the island) is scarcely fit for the meanest of their Majesties' subjects to travel on,—AND PAY FOR; and is much less suitable for their Majesties

themselves, and their amiable family, to trust their own persons upon.

Materials are plentiful, and upon the spot. The stone of the subsoil is a blue-and-white limestone. Lying, however, in thin strata, separated by thicker seams of clay, the raising of it is somewhat expensive, and its duration is short. But the shortness of the carriage stands against these disadvantages. Below Glocester, the roads are made with "slag," copper dross—and with the stone of St. Vincent's Rock, near Bristol. To forty or fifty miles of water carriage, two or three of land carriage are not unfrequently added!

IX. TOWNSHIPS. The only circumstance noticeable, in this place, is the unfrequency of ALEHOUSES, in the townships of the vale: a circumstance which reflects much honor on the magistracy of this county. Alehouses are an intolerable nuisance to husbandry. They are the nurseries of idleness, and every other vice. A virtuous nation could not, perhaps, be debauched sooner, or with more certainty, than by planting alehouses in it: yet we see them every where planted, as if for the purpose of rendering this nation more vicious than

it already is. If a reform of the lower class of people be really wished for, the first step towards it would be, to shut up the principal part of the petty alehouses which are, at present, authorized by Government to debauch them. Unfortunately, however, for so desirable a reform, alehouses, like lotteries, are opened "for the good of the nation"! The nation must be in a tottering state, indeed, if it require gambling and drunkenness, the two main pillars of vice, to support it.*

X. STATE OF INCLOSURE. Many of the townships of this vale still lie in open COMMON FIELD, "COMMON MEADOW," and COMMON PASTURES, provincially "HAMS," which are stinted for cows and other cattle. Perhaps half the vale is undivided property.

In the common arable fields, property is intermixed in a singular manner. Not with

* From what will follow it may be said that a want of alehouses cannot prevent drunkenness. In *this* country, it certainly cannot. Nevertheless, this district is a striking evidence, that a scarcity of alehouses lessens the vices which seldom fail of associating themselves, with *public* drunkenness. There is a kind of *Pellewian* deportment observable, among the lower class of people, in this district, which I have not been able to discover, in any other.

a view to general conveniency, or an equitable distribution of the lands, to the several messuages of the townships they lie in, as in other places they appear to have been; but, here, the property of two men, perhaps neighbours in the same hamlet, will be mixed, land with land, alternately: though the soil and the distance from the messuages be nearly the same.

A tradition, which prevails in the district, relates, that this intermixture was made, intentionally; to prevent the inclosure of the fields; and the crime is laid to the charge of the "Barons."

The circumstance of intentional intermixture is probable; but the *Barons* were less likely to effect such an expedient, than the *Abbots;* whose monasteries were to be fed from the produce of the countries, they severally stood in. Roads, in those days, were, in all probability, worse than they are now; and the business of distant carriage, much more difficult, than it is at present.

The monasteries being thus situated, their existence depended on keeping a due portion of the lands, in a state of aration. But the lands of this district being better adapted,

by the coolness of their situation, to *grass* than to *corn*, they were no sooner inclosed, than converted to grass lands: and there appears to have been no other probable means of preventing their inclosure, than by cutting them into shreds, too small for that purpose, and intermixing them, in the manner in which they too evidently appear.

XI. The PRODUCE of the vale is much of it CORN. Besides the open fields, a considerable share of the inclosures are arable. However, if we include the common meadows and stinted pastures, nearly half the district may be in GRASS. The WOODLAND is inconsiderable; not a hundred acres in the district. I speak of the area of the vale. The Cotswold cliffs, which overlook it, are partially hung with wood. Above Witcomb, on the southern limb of the circle, there is a charming tract of woodland. If more of this irregular cliff were planted, especially the steeper bolder projections, which are now in a state of waste, the profit, eventually, might be considerable to the owner; while beechen mantles, thrown over the present baldness of these projections, could not fail of being grateful to the observers of rural beauty.

THE

RURAL ECONOMY

OF

THIS DISTRICT.

DIVISION THE FIRST.

LANDED ESTATES.

AND THEIR

MANAGEMENT.

1.

ESTATES AND TENURES.

THIS DISTRICT includes no large estate.—Several noblemen have off estates in it; but none of them are extensive. The remainder belongs, principally, to resident gentlemen; and to a pretty numerous yeomanry.

The TENURE is mostly *fee simple*; with some *copyhold*; and a considerable proportion of *Church leasehold*. In the VALE OF EVESHAM, one third of the landed property is said to be held by the last mentioned tenure:—mostly by *leases for lives*; two in

possession, and two in reversion: some by *leases for a term*; as twentyone years, renewable every seven.

2.

THE

GENERAL MANAGEMENT

OF

ESTATES.

THE DISTRICT, more immediately under observation, furnishes little interesting information on this head. There is no large estate in it, to take the lead, and establish a uniform system of management.

I. The TENANCY is various: much of the vale remains *at will*. But *leases* are now become common, upon some of the off estates. The *term*—seven, fourteen, or twentyone years.*

* In the open-field townships of the VALE OF EVESHAM, in which three crops and a fallow are the established course of husbandry—leases for four, eight, or twelve years; that is for one, two, or three courses; are

II. RENT. The old rent, for grass land, is 20*s.*—for arable commonfield, 10*s.* an acre: landlord paying land tax; which, in most cases, runs very high, in this district. But estates, in general, have been moderately raised, of late years. Grass land now lets from 20*s.* to 30*s.* Commonfield land 10*s.* to 15*s.* Arable inclosures, and "every year's land" 10*s.* to 20*s.* an acre.

III. COVENANTS. Landlord *builds* and *repairs.* Tenant has the care of the *fences:* and is, in the custom of the country, allowed to lop and top *hedgerow timber. Gate wood* is, I understand, pretty generally allowed; and sometimes *plowboot, &c.* In the center of the vale, tenants are restricted from selling *straw*; but, near the towns, they are not under this restriction.

IV. RECEIVING. The prevailing times of receiving are Michaelmas and Ladyday; landlords allowing their tenants six months' credit.

granted. This is a simple, judicious, principle of management, which might well be adopted, in other arable districts, in which a regular course of practice is established: thus, in Norfolk, six, twelve, or eighteen years would be a more eligible term of a lease, than seven, fourteen, or twentyone;—the present term.

V. REMOVALS. Ladyday is the usual time of changing tenants. Outgoing tenant sometimes holding part of the grass grounds, to old Mayday; and not uncommonly, I understand, keeping possession of the barns, &c. until the midsummer-twelvemonth following;—Harvesting, and thrashing out, all the corn sown upon the farm, previously to his leaving it.*

VI. FORMS OF LEASES. The following are the heads of a lease in use, on one of the first off estates in the district.

LANDLORD AGREES to let;--certain specified premises,—from Ladyday,—for a rent, and during a term, previously agreed upon.

ALSO, to put the buildings into tenantable repair; and to keep them in repair, during the term of the demise; (except as hereafter.)

* How much preferable, in this respect, is the *Norfolk* practice; in which the business of the farm goes on nearly in the same manner, in the first and last years of the lease, as in any intermediate year; and in which the incoming tenant obtains full *possession*, on the day of removal. (see NORF. ECON.) For the practice of *Cleveland*, a district very similar to this. See YORK. ECON. Art. REMOVALS.

LANDLORD RESERVES all mines, quarries, coals, minerals, and metals; all timber, fruit, and other trees, stores, germins, and saplings; with the lops, tops, and shredings thereof; together with all woods and underwoods, coppices, hedges, and hedgerows: (except as hereafter) with full liberty to search for, cut down, &c. &c.

ALSO, the right of hunting, fishing, and fowling; "and all other royalties whatsoever."

ALSO, free liberty of viewing the premises, and doing repairs.

ALSO, a liberty of planting timber or fruit trees, in hedgerows, or on "mounds;" that is ditch banks.

ALSO, to inclose, or to exchange lands, without controul of the tenant; the difference in rental value to be estimated and fixed, by arbitration.

TENANT AGREES to take;—and to pay the stipulated rent, half yearly; within fourteen days after it be due;—under forfeiture of the lease.

ALSO, to discharge all tithes, dues, levies, duties, rates, assessments, taxes, and payments, (the land tax only excepted) whether

parliamentary or parochial, imposed, or to be imposed, on the premises.

ALSO, to do suit and service at the Lord's Court, holden for the manor in which the premises lie.

ALSO, to do all necessary carriage for repairs.

ALSO, to provide wheaten straw, with rods, &c. for thatching.

ALSO, to repair, and keep in good order and repair, and to deliver up in such condition at the end of the term, the pump, and the windows, belonging to the premises.

ALSO, the "court yards"—(including the straw and dung yards)—with the causeways thereunto belonging.

ALSO, to repair, keep and deliver up in good order and repair, the hedges, gates, pales, rails, stiles, mounds, and fences; and to find iron work, spikes, and nails; (landlord providing and allowing rough timber;) for these purposes.

ALSO, to scour, and cleanse the brook, ditches, watercourses, drains, and pools; and the same to yield up, at the end of the term, in good and sufficient order and repair.

ALSO, to occupy, in himself or in his heirs,

&c. all and every part of the premises: and not to assign, set-over, or let, the whole, or any parcel of them, (without the licence and consent of the landlord) under forfeiture of the lease.

ALSO, not to plow, dig, or break up any of the meadow or pasture ground, belonging to the premises; under the penalty of ten pounds an acre, yearly, from the time of breaking up, to the termination of the demise.

ALSO, to grip, trench, hillock, and drain the grass lands.

ALSO, to fallow the arable land, every third or fourth year; according to the established course of husbandry of the township it lies in.

ALSO, to fold and pen on the premises, and not elsewhere, all such sheep as shall be kept thereon.

ALSO, not to sow hemp, flax, or rape seed, on any part of the premises. NOR, otherwise, to cross-crop: but to sow the same corn and grain, from year to year, according to the best and most usual course of husbandry, used in the respective townships.*

* The arable lands lie chiefly, or wholly in common fields.

ALSO, to rick and house upon the premises, all the corn, grain, and hay grown thereon. AND to spend and employ, on the same, all the straw and fodder arising therefrom, in a husbandlike manner. AND to use on the premises, where most need shall require, and not elsewhere, all the muck, dung, soil, and compost, rising thereon. AND not, in these or any other act or acts, negligently, wilfully, or willingly, impoverish or make barren, the lands under demise. NOR do or commit, or suffer to be done or committed, any waste, spoil, or destruction whatsoever.

ALSO, to plant ——— willows, (six for instance) yearly; on convenient parts of the premises; and to defend and replace them, if necessary; under the penalty of 20*s*. a tree, yearly: landlord allowing rough timber for fencing.*

ALSO, to preserve and keep all such trees as the landlord shall plant in the HEDGE-

* This is a well conceived clause. In a vale district, destitute, in a manner, of woodlands, the WILLOW becomes a most useful tree: supplying the place of coppice wood, for rails, stakes, handles of tools, edders, withs, and, particularly in this district, for making a species of cattle crib, which will be hereafter described.

ROWS, *from spoil or damage by cattle* (after they have been once well fenced with timber by the landlord). AND, in case any such trees shall die, *by being hurt or spoiled by cattle*, to plant in their stead the like number, and the same sorts and kinds; and these to preserve and keep; under the penalty of 20*s*. a tree yearly.*

* This likewise, *under due limitation*, is an admirable clause. Tempered with the Norfolk regulation, in this case, it might be extended, *with propriety*, to PLANTATIONS, and be rendered highly beneficial to an estate, without being *alarming* to the tenants; though, in every case, it must in its nature be *hazardous*.

A clause of this kind,—seeing the difficulty of raising trees on old hedgebanks,—the uncertainty of seasons, and the unskilfulness of planters in general,—ought to be strongly guarded, on the part of the tenant, in the specification of the damage, for which the penalty shall be due; confining it, solely, to damage by cattle or other stock, or to other neglect, or wilful damage of the tenant.

The penalty, in this instance, appears to me imprudently high. An annual forfeiture of *one* shilling a tree would, during the usual term of a lease, much more than repay the planting, and any increase of value, which could be expected in that time; and would be a sufficient *check*, without being an *obstacle*, to a good tenant.

My remarks on this clause are the fuller as I have not met with it in the leases of any other district; and I am fully persuaded, that, duly qualified, it would, if generally adopted, be highly advantageous to the landed in-

ALSO, *in the last year of the term*, to sow ——— acres with clover seed (at the rate of 18lb. an acre.) And suffer landlord or incoming tenant, to sow the remainder of the barley land of that year, with that or other grass seeds. AND not, after the barley crop be cut, to plow in, or break up, or cut, mow, graze, or eat off the young clover, or any part thereof.

ALSO, *in the last year*, to weed, hoe, and cleanse, or to suffer landlord, or incoming tenant, to weed, hoe, and cleanse, the last, or "*going-off crop.*"

ALSO, to rick and house, and spend on the premises, and not elsewhere, all and every part of the "*going-off crop*;" AND to leave in the courts and yards, all the manure made therefrom, for the use and benefit of the landlord.

ALSO, *in the last year*, to deliver up, on the twentyfirst day of December, to the landlord or incoming tenant, ——— acres of the arable land; as a fallow for the ensuing year.

TENANT TO BE ALLOWED (over and above

terest. It avails little to plant; especially in the hedgerows of off estates; unless the occupier be someway interested in the success of the plantation.

the rough timber for gates and fences) sufficient plowboot, and fireboot, necessary to be used in the management of the premises.

ALSO, the last or "going-off crop" of corn and grain, sown on the premises, in the last year of the term;—on such land, and in such kind and sort, as come, in due course of husbandry, to be sown in that year.*

ALSO, the use of the barns, and part of the out buildings and yards, for thrashing out the grain, and spending the fodder of the

* There is no condition made, in this district, nor I believe, in this quarter of the kingdom, for the outgoing tenant to pay the rent and taxes (what in Yorkshire is termed the onstand) for his going-off crop: so that, here, (by long custom) the outgoing tenant occupies, and receives the profits of, perhaps, three fourths of the arable land, after the term of general occupation ceases; while the incoming tenant is paying rent and taxes for it, without receiving any immediate advantage whatsoever from it. In *this* district, where wheat is sown very late, AUTUMN, appears to me, evidently, the most eligible time of removal: and I have seen the copy of a lease, terminating at MICHAELMAS, in which the tenant agrees to plow the fallow-field lands, twice, and manure them, in a husbandlike manner, in the last year of the term; and to give up the rest of the arable lands, and a part of the buildings, as soon as the last crops shall be off:—a mode of conducting the disagreeable business under notice, greatly preferable, in my opinion, to that which is in more general practice.

last crop, during twelve months, after the expiration of the term.

3.

FARM BUILDINGS.

IMPROVEMENTS in rural architecture are not to be expected, in the district under survey. Nevertheless, the leading facts, respecting its FARM BUILDINGS, require to be registered; and some peculiarities, as well as some few modern improvements, are entitled to notice.

I. MATERIALS. Timber appears to have been, formerly, the prevailing building material of the district. Farm buildings, in general, even to this day, are of framework; filled up with strong laths, interwoven in a peculiar manner, and covered with plastering; or the studwork is covered with weather-boarding alone; especially of farm yard buildings.

The present WALLING material is *brick*. Some few "*clay stones*," dug out of the substrata of the vale, are used; and, under the hills, "*freestone*"—a soft calcareous granite

which is common to the Cotswold hills, is in use.

LIME is, here, a heavy article of building. —From 6*d.* to 8*d.* a bushel, of ten gallons level, at the kiln.

The stones, from which it is burnt, are brought, by water carriage, to the towns upon the Severn,—either from Bristol, or from Westbury, &c. at the foot of the Forest of Dean, where the "claystone" of the subsoil is raised for this purpose. The kilns are built on the banks of the Severn; so that no land carriage of the stone is requisite. But the lime, notwithstanding the exorbitant price at the kiln, is to be conveyed, by land, into the area of the district. The margin is supplied with the calcareous granite (which has been mentioned), from the Cotswold cliffs; and from Bredon hill; evidently a fragment of the Cotswolds.

These stones vary much, in general appearance and contexture; and the limes produced from them are not less various in their qualities.

The "Bristol stone" has a somewhat flint-like appearance; is of a close, hard, and uniform contexture; and of a dark redish colour; sparkling with sparry par-

ticles; and flying under the hammer, like glass: *no marine shells*. One hundred grains of it afford fortyfive grains of air, and ninetyseven grains of calcareous matter; leaving three grains of residuum;—a dark-coloured, impalpable matter.* The lime, produced from this stone, bursts readily in water; and (like that produced from calcareous spar) is, when fallen, of a light floury nature; white as snow: it is coveted by the plasterer; but is considered, by the mason and bricklayer, as being of a *weak* quality.

The Westbury stone—which is a sufficient specimen of the "claystones" found in the substrata of most parts of the district—is, in colour, contexture, and general appearance, very different from the rock of St. Vincent. It resembles, in every respect, the marble-like limestone of the hills of Yorkshire: generally blue at the core, with a grey dirty-white crust: the base being of a smooth, even texture; *interspersed with marine shells*. When it is fresh raised out of its watery bed, in the area of the vale, it is a

* In solution, it rises to the surface, as a black spume: on the filter, it has the appearance of moistened soot: it adheres to the paper in drying.

soft substance, of a somewhat soaplike appearance; but hardens (or falls to pieces) on being exposed to the atmosphere. One hundred grains of this stone throw off forty grains of air; and afford ninetyone grains of calcareous earth; leaving a residuum of nine grains;—an ash-coloured silt. The lime burnt from it is characterized by *strength*; and is high in esteem, for cement; being found strong enough, in itself, to be used in water-work. It falls slowly; is of a somewhat sulphur colour; and is distinguished by the name of "brown lime."*

* Having observed the reluctance with which the lime of this specimen (fresh from the kiln) imbibes water; while that of the Bristol stone drinks it with singular avidity,—I was led to try, by a comparative experiment, whether their powers of imbibing air (that is, of regaining their fixed air) were in like proportion. The result is interesting.

One hundred grains of the first (in one knob) suspended in a pair of scales, acquired full five grains in twentyfour hours. In a drawer (which was sometimes open, sometimes shut) they gained, in twentyfour hours more, the same additional weight. In seven days more (wrapped in paper, and lying in a drawer) they got twentythree grains: in all thirtythree; or about three and a half grains a day: mostly air, with, in all probability, some portion of water.

One hundred grains from the Westbury stone, placed in the drawer, increased, in twentyfour hours, not quite

The specimen of *calcareous granite*, which I have before me, was taken from the middle stratum of a freestone quarry, within the "camp," on Painswick hill. It is common to the Cotswold and the Lansdown hills; and corresponds exactly with the soft limestone granite of Malton, in Yorkshire. It varies in specific quality. The Bath stone is softer and lighter than the specimen under analysis. One hundred grains of which discharge fortyfour grains of air; yielding ninetyeight grains of soluble matter; and two grains of residuum; a snuff-coloured impalpable matter.*

one grain! In twentyfour hours more, in the scale, they barely made up a grain and a half! In seven days more, they gained (in the drawer) exactly nine grains: in all ten and a half grains: not a grain and a quarter a day. Hence, we may conceive, how widely different may be the qualities of lime. Consequently, how dangerous it is to draw general conclusions from an experiment, or even experiments, made with one particular species.

* It is proper to say that these experiments were made, and repeated, with great attention, and with exactly the same correspondent results: nevertheless the *proportion of air to dissoluble matter* varies in each specimen. In the Bristol stone, the proportion is more than fortysix, in the Cotswold less than fortyfive,—in the Westbury less than fortyfour, to one hundred.

The method of *burning lime*, in this country, has nothing which entitles it to notice; except the practice of riddling and hand-picking the lime, as it is drawn; to take out the ashes, cinders, and rubbish which may have been thrown into the kiln, with the stones or coals. The labor is not great; and the work is valuable. Lime, as a building material, especially for the plasterer's use, cannot be too pure. The refuse pays the laborer, and the quantity of stone lime loses nothing by its absence.*

TIMBER. The old buildings of this district are full of fine oak; in which the lower lands of Glocestershire have heretofore, in all probability, been singularly abundant. But, at present, the vale is entirely stripped, and even the forest of Dean (some few parts of it excepted) is almost naked of good *oak timber*.

* The LIMEKILN of this district is noticeable, as being frequently furnished with a TOP, set upon the walls of the kiln, and contracted in a funnel-like form; the materials being carried in, at a door, in the side. In one instance, the kiln is built within a cone; in the manner of the brick kilns, about London. The principal, if not the sole use of these tops, is to carry up the smoke, and prevent its becoming a nuisance, in the neighbourhood the of kilns.

The vale, however, abounds at this time, with *elm* of uncommon size and quality. This, and foreign timber, are the ordinary materials in use for farm buildings: oak being used, only, where durability is more particularly requisite.

COVERING MATERIALS. An ordinary kind of *slate*, got out of the sides of the hills, has formerly been the prevailing covering of the district. At present *knobbed plain tiles* are principally in use. The knob is an obvious improvement of the hole and pin; which are still used about the metropolis.

Thatch is still in use, for cottages and farm buildings. A species of thatch, *new* to the rest of the kingdom, is here not unfrequently made use of; especially near towns, where wheat straw is permitted to be sold. In these situations, not only ricks; but *roofs*; are thatched with STUBBLE: a material which is found to last, much longer than straw; unless this be "helmed;" that is, have the heads cut off, before thrashing, in the Somersetshire manner: a practice which is not common in this country. That stubble should be found to endure is reasonably imagined. It has the advantage of helm (in not being bruised by the flail) and consists

of the stoutest part of the stems. In many districts, it would be difficult to be used, on account of its shortness; but, in this country,—where it is cut eighteen inches or perhaps two feet high, and (in the situations where it is more frequently used) has generally a sufficient quantity of long wirey grass among it to hold it together,—there is no great difficulty in thatching with it: except in the raking; which requires a tender hand. It is first driven upward a little, with the teeth of the rake; beaten; and then raked gently downward.

FLOORING MATERIALS. Upper floors have heretofore, been laid with *oak*; which is still common, in the floors and staircases of all old houses. *Elm* has, perhaps, been more recently used, and is still in use, for the same purposes. Ground floors are not unfrequently of common *bricks* (a vile material for floors) or of "forest stone;" an excellent freestone grit, raised in the forest of Dean.

II. FARMERIES. The farm buildings and yards, of the district under survey, have not much to recommend them to particular notice. The arrangement has seldom any obvious design. There are, however, some few exceptions.

The BARNS of the vale are below the middle size; except those of the monasteries, which appear to have been immensely large. One of them, which I had the opportunity of observing, is in high preservation, and is still in use as a barn. Over one of its porches is a room furnished with a fire-place and chimney, and opening into a gallery, on the inside of the barn; probably for the conveniency of the barnward, in overlooking the workmen.

There are few modern barns: the best, which has fallen under my observation, measures thirtysix by eighteen feet, on the inside;—and the plate twelve feet high. The foundation is of brick. The shell is elm weather-boarding. The covering knobbed plain tiles, twelve inches by seven; laid in coarse mortar; with four and a half inch gage. The roof, behind, continued down to a plate, six feet high, supported by posts of elm, set on stone; forming an open shed, for cattle to rest under.

The BARN FLOOR of the district is mostly of *plank*; or of *forest-stone*; which makes an admirable floor, for beans, and not a bad one, for barley: even wheat, with due care, in keeping the ears bedded among straw,

to prevent the flail from breaking the grain, may be thrashed on a stone floor, with propriety. Clay floors are, here, in low esteem. The price of a stone floor, complete, is about 5*d*. a foot.

Descriptions of the CALF STAGE, and of the BULLOCK SHED, of this district, will appear under the articles to which they respectively belong; namely, REARING CATTLE, and FATTING CATTLE: subjects which will be duly noticed, in their places.

The CIDERMILL HOUSE, an erection almost as necessary as a barn, upon a Glocestershire farm, will likewise be described, under its proper head.

STACK STAGES are, here, very common. Mostly upon stone pillars and caps. The price 18*d*. to 2*s*. a pair. A small, but snug frame, is here made with five pillars. Four set quadrangularly, and one in the center. By making the outside of the frame somewhat compassing, round stacks are conveniently enough set on these square stages.

YARD FENCES are, almost invariably, *broad rails*; the Norfolk battons. Under these fences, a line of STRAW MANGERS are usually formed: and, in the area of the yards, CRIBS, of various constructions, are in use.

4.

FIELD FENCES.

OLD LIVEHEDGES are the ordinary fences of the district. The present inclosures, if we may judge from the age of their hedges, are probably some centuries old.

In the MANAGEMENT of live fences, whether young or old, I have met with nothing, here, that is entitled to particular notice.

It is, however, observable, in this place, that one of the finest hedges, I have seen in the district, grows on a cold unproductive swell: the land not worth, though inclosed, 10*s*. an acre: yet, on land worth twice that rent, I have seldom seen a hedge grow so luxuriantly. A sufficient evidence, that, *in the valuing of land*, HEDGES cannot be relied on, as criterions to judge from. The hedge may feed in a fertilizing subsoil, which corn or the better grasses, may not be able to reach.

The DITCHES, in every part of the vale, are shamefully neglected! A vale district, without deep clean ditches, reflects disgrace

on the owners, as well as on the occupiers, of its lands. In a district, that, by natural situation, is too cold and moist, every possible means ought to be used, to free it from surface water: which, if it stand, only an hour, upon the soil, or in immediate contact with it, adds, more or less, to its natural coldness.

The ordinary TEMPORARY FENCE is bar hurdles.

GATES are here made low; with a strong top bar, in the Kentish manner; but want the long upper eye, or thimble, of the Surrey gate.*

STILES are singularly abundant. They appear frequently to be placed, merely, as preservatives of the hedges; and this may, in many cases, be good policy. They are frequently made *to open:* the top rail having an iron bolt driven through it, at one end; the other end falling into a notch in the opposite post; making an opening, wide enough to pass a carriage through, occasionally.

* HANGING GATES. In this district, it is the invariable practice to drive the hooks into the *corner* of the posts, and the thimbles into the *corner* of the hartree; which, in this case, shuts within the post.

5.

HEDGEROW TIMBER.

THE HEDGE TREES of the vale are mostly those of ELM, and WILLOW. Few of OAK or ASH.

The MAPLE, which grows unusually large, here, is considered as a timber tree, and is put to many uses, for which, in other districts, it is not deemed suitable. But the nature of the soil, or the variety which is here cultivated, may render its texture less brittle, than it generally is, in other districts. Hurdles, gates, and even ciderpress screws are made of it.

The ELM (chiefly the fine-leaved elm) grows with uncommon luxuriance, and to an unusual size, in the vale soils. Its progress is quickest, on the lighter warm lands; but, there, the trees soonest decay, and the timber is of the least value. In stiffer, more clayey situations, its growth is less rapid; but its timber is of a much better quality;

the color of iron; and, in some instances, almost as hard. The Bristol ship-builders have a supply of keel-pieces from this quarter; and I know no country which is so likely to furnish good ones.

The vales of Glocestershire may boast of three of the most remarkable trees in the island. PIFFE'S ELM, the BODDINGTON OAK, and the TORTWORTH CHESNUT;—but having described them fully in another work, I forbear to particularize them, here.*

Hedgerow timber is universally *lopped;* few, however, are *headed,* low, in the pollard manner; except WILLOWS; which, as has been said, are here, considered in a degree necessary to every farm.

* See PLANTING and RURAL ORNAMENT, articles FAGUS: QUERCUS: ULMUS.

DIVISION THE SECOND.

WOODLANDS AND PLANTING.

1.

WOODLANDS.

COPPICES are the only natural woodlands of the area of the vale. Of these there are two or three: one of them, in the center of the vale, is of considerable extent.

Part of this coppice is a COMMON WOOD; *appropriated* to the messuages of the township it belongs to, but not *divided*: somewhat analogous with common fields, and common meadows. A species of property I have not met with, elsewhere.

It is observable, that, in a part of this coppice, some standard oaks are left as timber trees; which, contrary to common practice, are lopped to the top (as hedgerow trees) every time the coppice wood is cut. This

certainly lessens their hurtfulness to the underwood; but the timber becomes, no doubt, of a very inferior quality. Their crop of fuel, however, every fifteen or twenty years, must be considerable. The question is whether, on the whole, they are, or are not, more profitable than coppice wood alone: and it appears to me, on reflection, to be a disputable question. It probably hinges on whether the trees feed, below, or among, the roots of the coppice wood.

This patch of woodland is further entitled to notice. The *soil* is an unproductive clay, mixed with, and bottomed by, a thin, seam of calcareous gravel; lying on a cold clayey subsoil; not worth, as arable land, more than 8s. an acre: not estimated, in this country, at more than 5s. an acre.

The *species* of wood is principally *oak*, *ash*, and *maple;* with some *sallow*, *hawthorn*, and *hazel*. The *uses*, to which it is applied, are principally rails, hurdle stuff, hedging materials, and fuel. The *age of felling* twenty years. And its estimated *value* at that age, twelve to fifteen pounds an acre. Its growth is uncommonly luxuriant: the stools are thick upon the ground; and being cut high, afford numerous shoots. In

the latter stages of its growth, it is the most impenetrable thicket I have seen; while the crops of corn and grass, which border upon it, are remarkably weak and unproductive.

This shows, in a striking manner, the judgment requisite in laying out estates: giving such lands to husbandry, as are adapted to its productions; and converting to woodland, such as are naturally prone to wood.

2.

PLANTING.

THE PLANTATIONS of the vale consist, wholly, of fruit trees. Forest trees may be said to be, here, in total neglect; excepting some few ashen coppices, for cider-cask hoops; a species of plantation common on the Herefordshire side of the county.

If, however, we may judge from the coppice, which has been spoken of above; and the hedge noticed aforegoing; it is highly

probable, that many of the cold swells, which occur in different parts of the vale, might be planted with great profit.

The timber oak is, at present, almost entirely banished from *this* side of the Severn; and although the opposite banks are, yet, sufficiently wooded; the present woods will, in all probability, be fallen, long before such, as may be now raised from the acorn, will be ready for the axe.

DIVISION THE THIRD.

AGRICULTURE.

1.

FARMS.

THE PREVAILING CHARACTERISTIC of farms, in this district, is a mixture of grass and arable lands, in various proportions. Near the towns of Glocester and Tewkesbury, there are some few large farms, "all green:" that is, consisting entirely of grass land. But this, alone, makes an inconvenient farm; especially in a dairy country, where litter and winter fodder, for dry cows and rearing cattle, are requisite.

The exact proportion of arable to grass, however does not seem to be fixed. Too much grass gives a scarcity of straw; too much arable interferes with the dairy; or, perhaps, more accurately speaking, the

dairy interferes with much arable land. Even in harvest, let the weather be what it may, the business of milking and the dairy must be attended to.

Hence, perhaps, we may conclude, that corn and the dairy ought not to *rival* each other: one of them ought to be *subordinate;* ought to be rendered subservient to the MAIN OBJECT of management.

In regard to SIZE, the vale farms are of the middle cast. From one to three hundred acres is, I believe, the most prevalent size. There are some made-up farms, of much higher magnitude; but no entire farm, in the area of the vale, lets, I understand, for more than four hundred pounds, a year: not many, I believe, higher than two hundred a year.

PLAN. Some of these larger farms; most of them "manor" or "court" farms; or simply "the farm" with the name of the township affixed to it; (undoubtedly the ancient demesne lands of the townships they respectively lie in;) are very entire; and lie well round the homesteads. But farm houses, in general, stand in villages; the lands belonging to them being still scattered about, in the extraordinary manner

which has been described. How wrong in their owners, *now*, to continue them in that unprofitable state. The loss falls wholly on themselves. They let at a rent, proportioned to their present disadvantages.

2.

FARMERS.

HUSBANDMEN are much the same, in all districts: plain, frugal, pains-taking, close, and unintelligible. The lower and middle classes of farmers, of the district under observation, mostly answer, in a remarkable manner, to this description:—while some few, of the superior class, are as strongly marked, by liberality and communicativeness:—characters which begin to adorn superior farmers, in every district; and which must, eventually, do more toward the perfection of the art, than all the applauded schemes, which theory can boast. Theorists may draw plans, and suggest hints; and, in so doing, may do good service. But professional men, only, can exe-

cute, correct, mature, and introduce them into general practice. Should professional men become scientific, as well as liberal, what may not be expected? And who, viewing the rising generation, many of them opulent, well educated, and duly initiated in the profession they are designed for, can apprehend, that none of them will become studious of the art which, alone, can render them useful and respectable in society?

3.

WORKMEN.

FARM LABORERS are sufficiently numerous.—they are noticeable as being simple, inoffensive, unintelligent, and apparently slow. How different from the farm laborers of Norfolk!

Their wages are very low, *in money*; being only 1*s*. a day. But, *in drink*, shamefully exorbitant. Six quarts, a day, the common allowance: frequently two gallons: sometimes nine or ten quarts; or an unlimited quantity.

In a cider year, the *extravagance* of this absurd custom (which prevails throughout the cider country) is not perceived. But, now, (1788) after a succession of bad fruit years, it is no wonder the farmers complain of being beggared by malt and hops! They are not, however, entitled to pity. The fault—the crime—is their own. If a few leading men, in each township, would agree to reduce the quantity of laborers' drink within due bounds, it would at once be effected.

But the origin of the evil, I fear, rests with themselves. In a fruit year, cider is of little value. It is no uncommon circumstance to send out a general invitation, into the highways and hedges; in order to empty the casks which were filled, last year, that they may be refilled, this. A habit of drinking is not easily corrected. Nor is an art learnt in youth readily forgotten. Men and masters are equally adepts in the art of drinking. The tales which are told of them are incredible. Some two or three I recollect. But, although I have no reason to doubt the authorities I had them from, I wish not to believe them: I hope they are not true.

Drinking a gallon-bottle-full, at a draught, is said to be no uncommon feat: a mere boyish trick, which will not bear to be bragged of. But to drain a two-gallon bottle, without taking it from the lips, as a laborer of the vale is said to have done, by way of being even with master, who had paid him short in *money*—is spoken of as an exploit, which carried the art of draining a wooden bottle to its full pitch. Two gallons of cider, however, are not a stomach-full. Another man of the vale undertook, for a trifling wager, to drink twenty pints, one immediately after another. He got down nineteen (as the story is gravely told) but these filling the cask to the bung, the twentieth could not of course get admittance.

But the quantity drank, in this extempore way, by the men, is trifling, compared with that which their masters will swallow, at a sitting. Four well seasoned yeomen, (some of them well known in *this* vale) having raised their courage with the juice of the apple, resolved to have a fresh hogshead tapped; and, setting foot to foot, emptied it at one sitting.

4.

BEASTS OF LABOR.

HORSES are, at present, the only beasts of draught, in the vale.

Formerly, some OXEN were worked in it, double, in yoke; but they were found to poach the land, and were, on that account, given up. But, now, when oxen are worked, on almost every side of it, single, as horses, it is somewhat extraordinary they should not be admitted into the vale; where their keep would be so easy: where grass and hay may be had at will.

The objection still held out against them is, that, even single, they tread the vale lands too much. But in this, I suspect, there is a spice of partiality for the good old way: a want of a due portion of the spirit of improvement; a kind of indolence. It might not, perhaps, be too severe to say of the vale farmers, that they would rather be eaten up by their horses, than step out of the beaten track to avoid them.

In harrowing wide ridges, in a wet season, oxen may be less eligible than horses. But shoeing them with whole shoes, as horses, might remedy the comparative evil. If not —let those, who are advocates for oxen, calculate the comparative difference, in *wear* and keep; and those, who are their enemies, estimate the comparative mischiefs of treading; and thus decide upon their value, as beasts of labor, in the vale.*

If, after a *fair trial*, oxen be ineligible; let the present *waste of horses* be lessened. Using five horses to a plow, in stirring a loose loamy fallow, not more, perhaps, than four or five inches deep, is a crime against the community, that ought to be punishable. In the first plowing of a fallow; as well as in plowing for beans or wheat; six, and not unfrequently seven horses, at length, are used to *one* plow! Yet these five, six, or seven horses; with one or two men, and one or two boys; seldom plow three quarters of an acre, a day; two thirds of an acre is the day's work of the country! But thē plow, in use, is a disgrace to present

* I am told, that in the VALE OF EVESHAM, they are gradually coming into use.

husbandry; thirteen to fourteen feet long, and heavy in proportion.

I am well aware, that strong land, plowed deep, as it sometimes is, here, requires a strong team: and that a long plow is *convenient to the plowman;* especially in laying up high steep ridges. But similar ridges are laid up, in the midland counties, with a short plow and three horses. And I know, from experience or adequate observation, in various parts of the island, that, allowing for the nature of the soil, and the awkwardness of the ridges, there is an evident and great waste of plow horses, in the district under notice. Six horses, worth perhaps from twenty to thirty pounds each, are not expected to work more than fifty or sixty acres of arable land (with a greater or less proportion of grass land annexed to it.) If these fifty or sixty acres be common field land, the interest of the first cost, the annual *wear*, and the hazard incident to such six horses, amount nearly to the rental value of the land: and their keep, if they be properly kept up, is worth twice or three times its rental value.

5.

IMPLEMENTS.

THE GLOCESTERSHIRE WAGGON is, beyond every doubt, the best farm waggon I have seen in the kingdom. I know not a district which might not profit by its introduction. Its most striking peculiarity is that of having a crooked side rail, bending archwise, over the hind wheel. This lowers the general bed of the waggon. without lessening the diameter of the wheels. The body is wide, in proportion to its shallowness; and the wheels run six inches wider, than those of the Yorkshire waggon, whose side rail is six inches higher. Its advantages, therefore, in carrying a top heavy load are obvious. (See YORKS. ECON. on this subject.) And, for a low, body load, it is much the stiffest best waggon I have seen. The price £20. to £25. according to the size, and the strength of the tire. The weight 15 Cwt. to a ton.

This waggon is common to Glocestershire, and to North-Wiltshire. How much farther it extends westward, I know not. It is a stranger in the southern, the eastern, the northern, and the midland counties.

Where, and by whom it was first invented, I have not learned. It is sometimes called the Cotswold waggon. It is, by way of pre-eminence, well entitled to the name of the Farmers' waggon: for I have not seen another, which, compared with this, is fit for a farmer's use.

1796. For conjectures on the origin of this waggon, see WEST OF ENGLAND, Section IMPLEMENTS.

6.

SEASONS

AND THE

WEATHER.

THE PROGRESS OF SPRING, in 1788, in the vale of Glocester,

Sallow in full blow—4 April.
Sloe thorn in blow—11 April.
Hawthorn foliated—16 April.
Cuckoo first heard—20 April.
Elm foliated—21 April.
Pear tree in full blow—27 April.
Swifts—28 April.*
House marten—30 April.
Swallows—1 May.
Thermometer—76° in the shade—1 May!

* This is a remarkable circumstance. On the 29th of April SWIFTS were in number, flying high in the atmosphere, before a single SWALLOW had made its appearance. The weather unusually warm. A strong evidence, that the swift does *not* migrate. It seldom mistakes the season, like the swallow. We rarely see a swift, before the spring be confirmed.

Apple tree in full blow—3 May.
Oak foliated—4 May.
Ash foliated—5 May.
Thunder—6 May.
Hawthorn began to break the 10th; in full blow—17 May.

The only circumstance noticeable, with respect to the WEATHER of this year, is that of its *extreme dryness*. From the beginning of July, to the close of the year, there has been a continuation of dry weather; excepting two or three days' rain, in September.

Springs have seldom been known so low, as they are at present (Jan. 1789.) Nature's store rooms appear to be exhausted. Even in this watery vale, surface springs, in general, and most wells, have been dry, some months; water having been fetched, and cattle driven, a considerable distance. The reservoirs on the skirts of Matson hill, for supplying the city of Glocester with water, have been empty, many weeks: a circumstance unknown before.

This want of rain, here, is the more remarkable, as throughout a great part of Wales, not fifty miles distant, summer and autumn were rainy, almost without interruption.

In the middle of October, while the lands of this country wereso dry, that they could not, with any propriety, be worked for wheat; and while, even in Herefordshire, farmers were breaking the clots with beetles; the farmers of Wales, not twenty miles distant, had not been able to put a plow into the ground, for near a month, owing to the excessive wetness of the season. While in Yorkshire, having been missed by the rain of September, which gave a loose to the grass in this district, the stinted pastures had been so bare, the cattle had been foddered in them!

These circumstances, so remarkable, and so nearly connected with our subject, I could not pass over unnoticed. *Showers,* or *a few days' rain,* not unfrequenlty fall, in a partial manner: but I never before knew a *long continued rainy season,* which was not common to the kingdom.

7.

PLAN OF MANAGEMENT

OF

FARMS.

I. VIEWING the vale as one farm, its OBJECTS of management are the four grand objects of husbandry:

Corn;
Breeding;
The Dairy;
Fatting.

There are some few individual farms, applied, principally, *to grazing:* others, chiefly to the *dairy:* and there may be some few small *arable* farms. But, upon the larger farms, in general, the four objects are held in view.

The ARABLE CROPS are principally WHEAT, BARLEY, BEANS; with some *peas*, and a *few oats!* Also, of late years, some *clover*, *vetches*, and a few *turneps* have been culti-

vated.* It may, however, be said, with little latitude, that NATURAL HERBAGE is, in this district, the only SUBORDINATE CROP.

From what has gone before, it may, perhaps, be conceived, that the ARABLE MANAGEMENT of this district, cannot be entitled to particular notice. This, however, would be deciding too rashly. The rural management of a country resembles the moral character. I have not found one that is perfect: nor one which does not comprize some portion of good. The arable management, of the country under survey, appears to the observer in light and shade; and exhibits some traits, which the reader, I think, will not be displeased with. Besides,

* TURNEPS. In the center of the vale, there are few or none grown. The reason given is, they cannot be got off the land: and, while the country remains without roads and surface drains, this must necessarily be the case; especially where the soil is strong, tenacious, and cold; a soil altogether unfit for turneps. There are, however, lands in the vale, well adapted to this crop; and its absence implies, either a want of the spirit of improvement, or no need of *cultivated roots or herbage*. In a vale country, abounding with grass lands, turneps are of less value, than they are in a hilly country, destitute of *natural herbage*. If *arable herbage* were wanted in the vale, CABBAGES would probably be found more eligible than turneps.

in it, we have a specimen of the practice of a class of country, which includes a considerable share of the best lands of this quarter of the island: namely ARABLE VALE. A sketch of it appears, to me, essentially necessary, in a REGISTER OF THE PRESENT STATE OF ENGLISH AGRICULTURE.

The reader may rest assured, that, I will not dwell longer on the subject, than the general design of the work I am executing requires. I set out on this principle, have hitherto pursued it, and propose to adhere to it, on every occasion.

II. COURSE OF PRACTICE. The ancient course of the common fields was the same, here, as in most other districts: namely,

Fallow,
Wheat, &c.
Beans, &c.—And to this ancient course, several of the townships of the vale still adhere.

But some townships, in *this* vale, and many, I believe, in the *vale of Evesham*, have, of late years, changed the ancient system of management, for one, which, singular as it may appear, to those who have been accustomed to fallow for wheat,

is founded on good principles; and might well be copied by other stiff-soiled, open-field townships: namely,

Fallow;
Barley;
Beans, or clover;
Wheat.

The reasons given for this change (this striking and singular effort, this promising dawn of improvement) are,—the bean crop, in the old course, came round too quick; the wheat did not do so well, after fallow, as after beans;—nor the beans so well, after wheat, as after barley.

Some farmers throw in CLOVER, instead of beans, between the barley and the wheat crops.

In the neighbourhood of Glocester, are some extensive common fields, under an extraordinary course of management. They have been cropped, year after year, during a century, or perhaps centuries, without one intervening whole year's fallow. Hence they are called "EVERY YEAR'S LAND."*

On these lands, no REGULAR SUCCESSION of crops is observed; except that a "brown

* Cheltenham, Deerhurst, and some few other townships, have likewise their "EVERY YEAR'S LANDS."

and a white crop"—pulse and corn—are cultivated in alternacy.

The inclosed arable lands are under a similar course of management.

8.

SOILS

AND

THEIR MANAGEMENT.

I. THE SPECIES OF SOILS have been mentioned as various. Near the towns of Glocester and Tewkesbury, a DEEP RICH LOAM prevails. In the environs of Cheltenham, a DEEP SAND. The rising grounds of Deerhurst are covered with a RED LOAM; a remarkable species of soil; common to the hillocks of the Over-Severn district, and to the inferior hills of Herefordshire. It is here called "RED LAND;" and resembles much the "RED HILLS" of Nottinghamshire.

The area of the vale is a DEEP LOAM; of various degrees of richness and contexture. In the center of it, a remarkable specimen

of vale land appears: a patch of CALCAREOUS GRAVEL: partaking of the nature of the Cotswold soil!

II. The particulars noticeable in the SOIL PROCESS of this district, relate solely to TILLAGE: namely.

1. Breaking up grass land.
2. Fallowing.
3. Laying up ridges.

1. BREAKING UP GRASS LAND. This is not a common operation; yet it sometimes takes place: at present, there are many instances, in which it is much wanted. Old pasture lands, overrun with anthills, and the coarser grasses, are not easily reclaimed, without the powerful assistance of the plow.

The method of performing the operation, in this district, is by no means intended to be held out as a pattern. It has, however, sufficient pretensions to a place in this register.

It varies, in the first stages: sometimes, the anthills are cut off, carried into heaps, and mixed with straw, &c. as manure for corn land. Sometimes, they are dried and burnt. But in the prevailing practice of the country, the sward and anthills are plowed up, together in the spring. In

summer, the land has *one* cross plowing. In autumn, the surface is reduced and levelled, with the harrow; sown with wheat; and the seed buried with the plow, among the grass roots and anthills.

The ensuing autumn,—the crop being reaped, and the stubble mown and raked off,—the soil is turned over, and sown again, (and perhaps a third time,) with wheat on one plowing! There has, I am told, been instances,—there has (I think I am well informed) been at least one instance, of wheat being thus repeatedly sown (upon a piece of extraordinarily good land) six years, successively; the last crop being said to be nearly as good as the first!!! This, while it discovers the indiscretion of the farmer, evinces the natural strength of the vale lands, and shows, in a striking light, the value of old-pastured turf, as a matrice for wheat.

2. QUANTITY OF TILLAGE. In the common fields that are under the improved plan of cultivation, the number of plowings, in the four years round, is six. Three in the fallow year; one for barley; one for beans; and generally, one for wheat.

The fallow is broken up, after barley

seedtime; slitting the ridges *down*, by a deep plowing. In the first stirring, they are gathered *up*. On this second plowing, the manure is spread; and plowed under, with a shallow furrow; which is, likewise, turned *upward*; to lay the ridges dry, during winter. In the spring, they are slit *down*, for barley; and, next autumn, gathered *up*, for beans; and the ensuing autumn, again plowed *upward*, for wheat. Six plowings, in four years, for three crops and a fallow; four of them being *upward*, two *downward*, of the ridges. Sometimes, the bean stubble is pared down, very thin, previous to the seed plowing for wheat. But sometimes the fallow has only two plowings.

With this small quantity of tillage, it is no wonder, that even the barley stubbles should be foul, or that the bean crop, notwithstanding the extraordinary care which is taken of it, should, in some season, be half smothered in weeds; or that the wheat stubbles, notwithstanding the singular attention that is paid to the crop while growing, should, not unfrequently, be knee-deep in couch and thistles.

Two or three plowings, of such stubbles, are not entitled to the name of a *fallow;*

they are just sufficient to break the roots of couch grass and thistles into sets, as it were to propagate and increase, rather than to lessen, their number. While seed weeds, of every genus, are suffered to mature, and shed their seeds, between the plowings. A more ingenious way of propagating weeds would be difficult to conceive.

Fortunately, however, for the character of the vale, as an arable country, this disgraceful management, though prevalent, is not universal. I have seen land, in various parts of it, in a high state of tillage, and beautifully clean. But, even for this, I cannot allow an occupier any great share of *merit*; it is little more than his *duty* as a husbandman. In keeping land clean and in tilth, and taking a crop every year, skill, as well as industry, is required, and merit is of course due. But to keep it in a husbandly state, with a whole summer's fallow, every third or fourth year, wants common industry only: and a man, who with this opportunity, suffers his crops to be impaired, through a want of sufficient tillage, ought not to be entrusted with the occupation of arable land.

If, however, we see cause of censure, in

a redundancy of weeds, and want of tillage, in the fields, which are fallowed every third or fourth year,—what shall we expect to find, in the fields, which are never fallowed? Where *barley* is looked up to as the *cleansing crop!* I wish not to exaggerate; and to describe their state of foulness, with accuracy, would be difficult, or impossible. I will, therefore, only say, that I have found beans hid among mustard seed, growing wild as a weed, but occupying the ground as a crop;—peas, languishing under a canopy of the corn marigold and the poppies;—barley, with scarcely a stem free from the fetters of the convolvulus;—and wheat, pining away, plant after plant, in thickets of couch and thistles.

In the language of censure, I have no gratification. But, could I pass over, unnoticed,—or, having seen, could be silent on—management so highly blameable,—I should be altogether unfit for the task I have undertaken.

It is more than probable, that one third of the crops, collectively, of some of the best-soiled fields in the district, is every year *lost*, through a WANT OF SUFFICIENT TILLAGE.

These circumstances are mentioned, with more readiness, and with greater freedom; as every district of the kingdom lies more or less open, to similar censure; and I make use of this opportunity of mentioning them; because no other district, I have examined, affords evidences so striking, as these which are here produceable.

It might not be far wide of the truth to say, that one fourth of the produce of the arable lands of the kingdom is *lost* through a WANT OF TILLAGE: yet I find men in every country *afraid* to make a whole year's fallow, lest they should lessen their produce! But let those who are adverse to fallowing, come here and be convinced of the magnitude of their error.

If land be in a state of foulness, with root weeds,—as half of the old arable lands of the kingdom may be said to be,—a year's fallow is the *shortest*,—the most effectual,—and the *cheapest* way of cleansing it. Tampering with fallow crops, in such a case, is mere *quackery*. When land is once thoroughly cleansed, it may, by fallow crops, and due attention, be kept clean for a length of years.

But, unfortunately for the occupiers of

the fields that are the more immediate subject of these observations, they *cannot* be summer fallowed; *because* every occupier cannot be brought into the same mind, in any one year; consequently, the assistance of *sheep* cannot be conveniently had.

A Norfolk man, who has always been used to make his fallows with horses, only, without having perhaps a single sheep upon his farm, might well inquire, if the farmers of Glocestershire use sheep in their plow teams? No. But a Glocestershire farmer, who has never seen a fallow made, which has not been at the same time a pasture (and sometimes not a bad one) for sheep, is led to believe, that a fallow cannot be made without them. I have heard it lamented, by well meaning men, that such famous land, as undoubtedly lies in these fields, should be liable to such an inconveniency. But I can assure them, from my own practice, that, in Surrey, where similar fields are not unfrequent, it is common to make pieces of fallow among corn; and without experiencing any material inconveniency, from the absence of sheep, during the summer season.

If land be so foul as to require a whole year's fallow, it ought to have no respite from tillage; no time to form a sheep pasture! Nor if, through want of leisure, or through neglect, it should form one,—is it necessary that it should be fed off with sheep. One man we see plowing in a crop of turneps, buckweed, or vetches, worth perhaps some pounds an acre; while another suffers his land to remain in a state of unproductiveness, lest he should plow in a few farthings' worth of sheep feed!

The *good effect* of fallowing the "every year's land" does not seem to be doubted: there is, indeed, at this time, evidence, amounting to demonstration, in the center of one of the fields under notice, A plot, which was summer fallowed (by a superior manager) four years ago, for wheat, was this year (1788) wheat after beans. In the spring, and during summer, it distinguished itself, evidently, by the colour and grossness of the blade; and its superiority at harvest is not less manifest. An acre of it is worth four of some acres in the same field. (Windmill field near Glocester.) By observation sufficiently minute, I am of opi-

nion that, taking the rest of the field on a par, one acre is worth two: and it is highly probable, that, with the unprecedented care, which, in this country, is taken of crops, while growing, the effects of the fallow will be seen, for many years henceforward.

I am of opinion that, with the practices of this country, in the seed and vegetating processes, which will fall presently under consideration, a whole year's fallow *judiciously made*, every ten, fifteen, or perhaps twenty years, would be found sufficient to keep the land in a state of cleanness and tilth. How extremely absurd, then, to suffer them to remain in their present unproductive state!

III. LAYING UP RIDGES. The high lands of the vale of Evesham, have long been proverbial. Those of the vale of Glocester are equally entitled to notoriety. It has been said of them, hyperbolically, that men on horseback, riding in the furrows, could not see each other over the ridges. This, we may venture to say, was never the case; though heretofore, perhaps, they have been higher, than they are at present. Not

many years ago, there was an instance of ridges, toward the center of this vale, which were so high, that two men above the middle size, standing in the furrows, could not see each other's head: I have, myself, stood in the furrow of a wheat stubble; the tips of which, upon the ridges, rose to the eye: a man, somewhat below the middle size, accidentally crossing them, sunk below the sight, in every furrow he descended into. But the stubble, in this instance, was not less than eighteen inches high. The height of soil from four feet to four feet three inches:—the width of these lands about fifteen yards. I afterwards measured a furrow near four feet deep.

But an anecdote, relative to the first-mentioned ridges, will show these extraordinary monuments of human industry, in a more striking light, than any dimensions which can be given. The occupier of them had, at a pinch, occasion to borrow some plow teams of his friends; one of whom called upon him, in the course of the day, to see them at work, and was directed to the field where six or seven teams were plowing. He went to the field (a flat inclosure of

twelve or fifteen acres) but seeing nothing of the teams, he concluded he had mistaken the direction, and went back for a fresh one. The fact was, the several teams were making up their furrows, and were wholly hid, by the ridges, from his sight.

The width of those lands was twenty to twentyfive yards: but lands, in general, are narrower, and of course lower; the height being, in most cases, nearly proportioned to the width. About eight yards wide, and two feet to two feet and a half high, seems to be, at present, the favourite ridge. These dimensions, though they may appear moderate, on paper, form, in the field, a steep-sided ridge.

The ORIGIN of high ridges has long been considered, I believe, as one of those secrets, which antiquity may call its own. They are certainly monuments of human industry; but are too *humble* to have engaged the attention of the antiquary; and tradition, at least in this district, is silent on the subject.

They are not peculiar to this, but are frequent in most other common field districts, in which two crops and a fallow is the established course of husbandry. Even upon the wolds of Yorkshire, I have ob-

served the thin light chalky loam, with which they are covered, scraped up together into high ridges.

In the vale under consideration, whose subsoil is of a nature so singularly cold and watery, there is some reason to suppose, that the soil has been thus heaped up, to render it dry and *warm*. But this could not be the motive in elevated situations, where the subsoil is absorbent. Nevertheless, we may rest assured, that they have been raised on *principle* (true or false) as they must have been raised with labor and expence.

The popular notion, here and in other places, is, that the soil was thus thrown into heaps, in order to increase the quantity of surface.

I cannot, however, think so meanly of the penetration of our ancestors, as to give in to this improbable notion. For even supposing every part of the superficies to be productive, the advantage accruing to *corn*, through such an expedient, is inconsiderable. It has no more *room to grow in*, than it would have if the surface lay flat. Its roots, and its ears, when formed, may gain some addition of freedom, but the stems rise

precisely at the same distance from each other, whether the land lie flat, or is raised into the highest ridges.

But in this district, where, in winter and wet seasons, each furrow, in many places, is a canal of stagnant water; and where, even in places in which the furrows lie above the adjoining ditch or shore, some yards' width of each is a thicket of weeds, without a blade of corn among them; the quantity of *productive surface is*, very evidently, and very considerably, *lessened*.

In every district, and in every situation, the skirts of high ridges are weak, and comparatively unproductive. For, in proportion as the ridges are raised, and the depth of soil is there increased, in the same proportion the furrows are sunk, and the depth of soil is there diminished; the bottoms of the furrows, generally, dipping into a dead infertile subsoil.

Besides, the skirts of high lands lie under another heavy disadvantage; especially where the soil is of a retentive nature, and the subsoil cold and watery. In a wet season, after the upper parts of the lands are saturated, the redundant water falls down,

of course, to their bases, where, meeting with a repellent subsoil, it is held in suspense; keeping the skirts of the lands, so long as the wet season continues, in a state much too moist and cold for the purposes of vegetation.

The present year (1788) affords numberless instances of this evil effect. Last autumn was excessively wet. At wheat seed time, retentive soils were in a state of mortar, and remained in that state, until late in the spring. It is probable, that, on the lower parts of the lands, much of the seed never vegetated; and the plants, which reached the surface, dwindled away as the spring advanced. In the colder parts of the vale, the skirts of the lands, in the latter end of May, had the appearance of fallow ground: in some particular situations, a stripe upon each ridge, only, was left: not half, perhaps not one third, of the surface was fully occupied. Whereas, had the same soil been judiciously laid up, in narrow lands, with cross furrows to take off the surface water, every foot of surface might have been filled, and every part been rendered equally productive.

But extremely disadvantageous as high ridges undoubtedly are, while they remain in a state of aration, they are no longer so, when laid down to grass. In this case, the surface is indisputably enlarged. Herbage, especially when it is pastured, spreads every way upon the ground, and does not rise perpendicularly, as corn. Besides, in this case, there is a variety of herbage, and a variety of soil, suited to every season. If the season be moist, the ridges afford a plenty of sweet pasturage, and dry ground for the pasturing stock to rest upon: and I had an opportunity of observing, in the year 1783, a dry year, that while the ridges, and flat lands in general, were burnt up with drought, the furrows of high lands continued in full herbage. It is observable, however, that in cases, where the subsoil is retentive, every furrow should have its underdrain; otherwise the herbage, especially in a wet season, will be of a very inferior quality.

The propriety of REDUCING HIGH RIDGES is a matter in dispute, among men who stand high in their profession. To me there appears no room for argument. If they be intended to remain under a state of arable

management, they ought to be lowered. On the contrary, if they be intended for a state of herbage, they ought to remain in, or near, their present form; provided the furrows be sufficiently sound, or lie high enough for draining. If not, the ridges ought to be lowered, until the furrows be sufficiently raised to lie dry, or to admit of underdraining.

In the common fields, no attempts, I believe, have been made to lower them, in any considerable degree. The practice of plowing twice, *upward*, to once, *downward*, as has been explained above, keeps them at, or nearly at, the ancient standard.

There is, indeed, a disadvantage attending the reduction of high ridges, which those, who have had no experience in them, may not be aware of. The *cores* of the ridges; though they have been formed out of the original topsoil; which, in all human probability, was, when buried, of a singularly fertile nature, are now become inactive, unproductive masses of *dead earth*. I have observed, where one of these ridges has been cut across, in sinking a stone pit, that the present soil forms an arch of dark-coloured rich-looking mold, a foot to eighteen

inches deep: under which lies a regularly turned segment, of ill coloured *subsoil;* resembling the *natural* subsoil of the country so much, that, unless we had indisputable evidence of these ridges being the work of art, we should be led to conclude, that nature had moulded them to their present form. This appears to me an interesting circumstance, especially entitled to the agricultor's attention.

Notwithstanding, however, this disadvantage in reducing high ridges, I have had the opportunity of seeing an instance of practice, in which some of the highest in the district have been brought down, to the desired pitch; and, in the only way perhaps, in which the height of *arable* ridges can be decreased, with propriety: namely, that of increasing their number.

The subjects, in this instance, were the inclosure particularly noticed in page 76; and a neighbouring inclosure; which, in 1783, was nearly reduced to the desired state. The other had, in 1783, been recently begun upon; and is now, 1788, in great forwardness.

The width of the lands, in this case, as has been said, was twenty to twentyfive

yards; the height five to six feet; the furrows lying much below the surrounding ditches; sometimes holding water enough "to float a barge!"

The method of reducing them was that of gathering up a new land, in each interfurrow of the old ones; which, by this means, were lowered, as the intervening lands were raised. To guard against the disadvantage explained, above, the whole of the manure, which would, in the course of practice, have been spread over the entire surface, was laid upon the crowns of the old or large lands; it being found that the new lands, being formed entirely of made earth, were sufficiently fertile, after they got their heads above water, without the addition of manure; and the sides of the large lands were fed from the crowns, by every plowing, and every shower. Altogether a great work, executed in a masterly manner.*

In the open fields, where the lands lie intermixed, this method of lowering them could not be practised. But one equally practicable is obvious: namely, that of forming each large land into three; by raising a small one on either side of it.

* By Mr. GEORGE PIFFE, of Down Hatherly.

Applying the manure, as in the above instance. If a general inclosure be not near at hand, some of the open-field townships might, I should imagine, reap great benefit by such a reform.

On the contrary, where an inclosure is likely to take place, and the land is naturally adapted to a state of *grass*, it might be wrong to lessen the width of the present ridges. In that case, the only requisite would be, to alter their form; by reducing them from triangular *roofs*, to *waves*, or segments of cylinders: a species of surface, for grassland, whose subsoil is any way inclined to retentiveness, which has many advantages, over a flat bowling-green surface.

9.

MANURES.

VALE DISTRICTS, whose soils are generally deep, and *naturally fertile*, require less manure, than thin-soiled upland districts; which, being *naturally infertile*, (if we may be allowed to speak of their original nature) require greater exertions of art, to preserve them in a state of productiveness.

Hence, in districts of the latter description, we see husbandmen anxious about manure; making the most of that which the farm itself affords; fetching others from a distance; and searching beneath the soil for more;—while, in countries covered with more generous soil, manures are in lower estimation: the degree of estimation varying, however, in different districts of this description.*

* The PRICE OF TOWN MANURE may be considered as no mean standard of the state of husbandry, or at least the spirit of husbandmen, in the neighbourhood of the

In the vale under survey, there is a considerable proportion of grass land. That which is pastured requires little addition of manure. And the grounds which are occasionally mown, have seldom any return made them. While the meadows, being either intrinsically fertile, or liable to be overflowed, pay an annual tribute to the dung yard, without expecting any return. The arable lands, therefore, form the only object of melioration; and DUNG may be said to be the only manure made use of, in meliorating them.

MOLD is not in use, either in the farm yard, or at the dung heap. I have seen it mixed with litter, or very long dung, layer-

given town. A man, whose intelligence is good, and whose veracity may be relied on, has favored me with the prices of manure, in the towns of this district. Glocester 1*s.* 6*d.* Tewkesbury 2*s.* Upton and Worcester 2*s.* 6*d.* to 3*s.* Evesham 4*s.* to 5*s.* a load, of about a ton.

The comparative highness of the price, at EVESHAM, is chiefly owing to the quantity of GARDEN GROUNDS, in the neighbourhood of that town; which supplies Birmingham, and formerly supplied many other distant markets, in a great measure, with garden stuff. There are now, it is said, two or three hundred acres under the garden culture.

for-layer; but this is not the common practice of the district.

MARL is not common to the vale. Weakly calcareous clays are frequent. The intervening strata, of the stone of the subsoil, are calcareous, in a slight degree. The only earth I have found, which can with propriety be termed marl, breaks out at the skirts, and in the roads, of the red hills of Deerhurst; and is, I believe, common to the red lands west of the Severn; where it is said to be used as a manure; and it ought to be tried, (if it has not been tried already) in the vale; though its quality appears, by analysis, to be of an inferior degree; not more than one fifth of it being a pure calcareous earth.

The specimen, I tried, was taken near Apperley. Part of it, in the hollow way, between the common and the village; part, from the foot of the hill, facing the Severn. The colour is light red, resembling that of salmon-coloured bricks: the contexture somewhat laminated, inclined to shale, or slate; but breaks freely in water. One hundred grains left a residuum of eighty grains; a cinnamon-coloured silt.

LIME has been tried; and, in one instance

at least, has been found very beneficial to the vale land. But I do not find that the use of it has, in any instance, risen into *practice*. The argument against it is, that stone is expensive to raise, and coals dear. Stones at 2*s*. a load are certainly dear; but coals at 10*s*. to 12*s*. a ton are very cheap, compared with their price, in many districts, where lime is burnt for manure.

It may be laid upon the land, here, at a much easier expence, than it is in Cleveland (a similar district) to which it is fetched, in the ordinary practice of husbandmen, twenty or thirty miles, by land carriage. But in Cleveland, the spirit of improvement has long been upon the wing: here, it might be said to be still a nestling.

In the MANAGEMENT OF DUNG, nothing claims particular notice; it is usually piled in the "courts," in spring; and, in the common field husbandry, is carried upon the fallows, the first dry season of summer. One particular, in the ordering of dung in this district, is, however, reprehensible: if a dunghill be formed, in the field, the carriages are drawn upon it; by which means its maturation is very much retarded. See NORF. ECON. art. DUNGING.

10.

SEMINATION.

IN THE SEED PROCESS, the vale farmers are above mediocrity. Beans and peas are, almost universally, SET BY HAND. Barley lands are CLODDED; and wheat "LAND-MENDED:" practices which lower, very considerably, the requisite QUANTITY OF SEED. It appears to me probable, that one fourth of the quantity of seed, usually sown in most other districts, is saved in this. The seed of barley excepted.

There is a prevailing opinion, backed by common practice, in the more central parts of the vale at least, that it is dangerous *to sow the fresh furrow of stiff land*: which, in this state, is thought to lie "*too hollow!*" A state, which the husbandmen of the vale seem cautiously to avoid. Hence, the wheat stubble is mown off, for beans, and the bean stubble drawn, for wheat; and the land suffered to lie, some time, between the

plowing and the sowing. Yet the lighter soils are sown on the fresh furrow. In Norfolk, a light-land district, the farmers dread nothing more, than their lands being cold and heavy, at the time of sowing.

Are these practices founded in right reason, or in custom? If in the former,—how difficult is the theory of this part of the arable process?

11.

CORN WEEDS, AND HOING.

THE SPECIES of CORNWEEDS, prevalent in this district, are arranged, in the following list, agreeably to their respective degrees of prevalency, on the "every year's lands," in the neighbourhood of Glocester; or as nearly so, as the intention of the arrangement requires.

The first ten are the most destructive.—In some cases, any one of the species would be enough to destroy a crop, were they not checked, in the manner which will be explained. The last nine are naturally the

inhabitants of road-sides and hedges; but, encouraged by the plow's neglect, have ventured abroad into the fields: even the common reed, I have seen waving its panicles, in number, over wheat, growing several lands-widths from its native ditch.

LINNEAN NAMES.	ENGLISH NAMES.*
Triticum repens,	couchgrass.
Serratula arvensis,	common thistle.
Sinapis nigra,	common mustard. †
Convolvulus arvensis,	corn convolvulus.
Chenopodium viride,	redjointed goosefoot. ‡
Chrysanthemum segetum,	corn marigold.

* PROVINCIAL NAMES are, in this case, necessarily omitted. The names of plants, even their provincial names, are known to a few intelligent individuals, only; no one of whom I have been fortunate enough to meet with, in this district.

† COMMON MUSTARD. This is the species which is cultivated, in the north of England, for its flour.—It is here the most common weed: being, in this district, what the wild mustard, or charlock, is in others: a circumstance, which is less extraordinary, than that of the district under notice being free from the latter plant. I have not been able to gather a single specimen.

‡ REDJOINTED GOOSEFOOT. This I have heard called, provincially,—" DROUGHT WEED:" an apt name for it.

Papaver Rhœas,—round smoothheaded poppy.

Papaver dubium,—long smoothheaded poppy.

Avena———wild oat.*

* The WILD OAT, a plant unknown in many parts of the island, is here, as well as in Yorkshire, a most troublesome weed of corn. In general appearance, this plant resembles, exactly, the CULTIVATED OAT: in stem, blade, panicle, chaff, and *kernel* they are the *same* plant: and, in colour, their seeds are subject to the *same* varieties: namely black, red, white. But, examined botanically, the wild oat differs, in three notable particulars, from *Avena sativa*; which is described by Linneus, as having "calyxes *two-seeded;* seeds *polished;* one *awned*;" whereas the calices of the wild oat are *two or three seeded;* the seeds *covered with long soft hair;* and *all of them* awned. Nevertheless, in one instance, I found the lower seeds of the panicle *nearly smooth:* this added to the circumstance of the Poland oat (a highly cultivated variety) growing in calices *one seeded*, and *without any awn*, renders it much more than probable, that the various sorts of cultivated oats are no more than CULTIVATED VARIETIES OF THE WILD OAT.

Be that as it may—the wild oat appears to be as confirmed a *native* of this island, as any other *arable* weed, which grows in it; and is, perhaps of all, the most difficult to be extirpated. It will lie a century in the soil, without losing its vegetative quality. Ground, which has lain in a state of grass, time immemorial, both in this county and in Yorkshire, has, on being broken up, produced it in abundance. It is also endowed with the

Equisetum arvense,—corn horsetail.
Agrostis alba,—creeping bentgrass.
Alopecurus agrestis,—field foxtail.
Festuca duriuscula,—hard fescue.*
Sonchus oleraceus,—common sowthistle.
Artemisia vulgaris,—mugwort.
Sinapis alba,—white mustard.†
Rumex crispus,—curled dock.
Carduus lanceolatus,—spear thistle.
Galium Aparine,—cleavers.

same instinctive choice of seasons, and state of the soil, as other seeds of weeds appear to have. This renders it, what it is considered, a difficult weed to be overcome: for, ripening before any *crop*, it sheds its seed on the soil; where it probably finds safety from the birds, in the roughness of its coat. FALLOWING; HOING;—and, where it is practicable, giving a final HAND-WEEDING, after it shoots its panicle, are the only means of extirpation.

* HARD FESCUE. This plant, which is one of the greatest pests, in the arable lands, of some districts, (under the name of BLACK COUCH) is seldom met with, in the plowed lands of this; notwithstanding their want of tillage: and notwithstanding it is found, (though not abundantly) in the surrounding grass lands.

† WHITE MUSTARD. Its seeds in this district are *red*; some of them inclining to a dark mottle; resembling, in colour, the seeds of the cultivated vetch: none of them lighter than those of the common mustard; *sinapis nigra*; whose seeds, when in perfection, are of a bright sorrel *red*.

Urtica dioica,—common nettle.
Sinapis orientalis.*
Rumex obtusifolius,—broadleaved dock.
Anthemis Cotula,—maithe-weed.
Matricaria suaveolens,—sweetscented camomile,
Chrysanthemum inodorum,—weakscented camomile.
Mentha arvensis,—corn mint.
Centaurea Cyanus,—bluebonnet.
Polygonum Persicaria,—common mild persicaria.
Sonchus arvensis,—corn sowthistle.
Lapsana communis,—nipplewort.
Atriplex patula,—spreading orach.
Tussilago farfara,—coltsfoot.
Ranunculus repens,—creeping crowfoot.

* SINAPIS ORIENTALIS. A plant which grows, here as a troublesome weed of corn, answering, with great exactness, Linneus's description of *sinapis orientalis*, I have ventured to call it by that name; though I have not been able to find it, in any list of *English* plants. Its stature is similar to that of the white mustard; to which its general appearance has some affinity; but, on closer examination, the affinity vanishes The points, with which its pods and stem are thickly set, incline *downward;* the body of the pod is *long;* and the beak *short;* the seeds *numerous, small,* and of a shining *black.*

Potentilla anserina,—silverweed.
Trifolium Melilotus officinalis,—melilot.
Achillea millefolium,—milfoil.
Stachys palustris,—clownsallheal.
Veronica hederifolia,—ivyleaved speedwell.
Senecio vulgaris,—groundsel.
Alsine media,—chickweed.
Thlaspi bursa-pastoris,—shepherdspurse.
Æthusa cynapium,—foolsparsley.*
Cerastium vulgatum,—common mousear.
Fumaria officinalis,—common fumitory.
Polygonum aviculare,—hogweed.
Plantago major,—broad plantain.
Avena elatior,—tall oatgrass.†
Agrostis capillaris,—fine bentgrass.
Heracleum sphondylium,—cowparsnep.
Centaurea scabiosa,—corn knobweed.
Scabiosa arvensis,—corn scabious.

* FOOLSPARSLEY. This is here a very common field weed (a character I have not seen it in before) but coming late, and not rising, in this situation, to a great height, its injury is little perceived.

† TALL OATGRASS. This is another fallow weed which is partial to particular soils or situations. Notwithstanding the want of tillage, in this district, I have not once seen its roots turned up by the plow.

Daucus carota,—wild carrot.
Lychnis dioica,—common campion.
Carduus crispus,—curled thistle.
Lycopsis arvensis,—corn buglos.
Lamium purpureum,—dwarf deadnettle.
Galeopsis tetrahit,—wild hemp.*
Ranunculus arvensis,—corn crowfoot.
Polygonum pensylvanicum,—pale persicaria.
Polygonum convolvulus,—climbing buckweed.
Antirrhinum linaria,—common Snapdragon.
Hypochæris radicata,—longrooted hawkweed.
Euphrasia Odontites,—red eyebright.

* WILD HEMP. This is another evidence of the same fact. In Yorkshire, it ranks with the more prevailing weeds. In the midland counties, it is still more prevalent: while, here, it takes place in the lower part of the catalogue.

These observations will, I am aware, be uninteresting to the reader, who is either unacquainted with the individuals spoken of, or is no way interested in the nature and prevalency of corn weeds. Nevertheless, they will, I am persuaded, be viewed in a different light, by the practical farmer, who is, at the same time, a practical botanist; and, I believe, I may add, that every *good* farmer *is* a botanist, *as far as his knowledge leads him; and ought to be*, as far as BOTANY relates to AGRICULTURE.

Euphorbia helioscopia,—sun spurge.
Viola tricolor,—common pansie.
Prunella vulgaris,—selfheal.
Leontodon taraxacum,—common dandelion.
Galium verum,—yellow bedstraw.
Malva rotundifolia, roundleaved mallow.
Vicia cracca,—bluetufted vetch.
Convolvulus sepium,—hedge convolvulus.
Galium mollugo,—tall bedstraw.
Conium maculatum,—hemlock.
Ballota nigra,—stinking horehound.
Erisinum aliaria,—garlic cress.
Lamium album,—white deadnettle.
Arundo phragmitis,—common reed.

After what has been said, under the head TILLAGE, it will be doing justice, only, to the vale farmers, to apprize the reader, in this place, that, inattentive as they undoubtedly are to the PREVENTION of corn weeds, they must not be considered as the avowed friends and allies of weeds: for, in the DESTRUCTION of them, they indisputably stand pre-eminent in their profession.

THE HOING OF CROPS IN GENERAL has long been held out, as a thing most desirable, in the arable process. Here, we find

it nearly in full practice. Not only the ligumenous crops, which are planted in rows; but WHEAT, which is sown at random, are hoed: not by a few individuals, only; but by husbandmen in general: the wheat crop being hoed, here, as customarily, as the turnep crop is, in Norfolk. Barley may be said to be the only crop, which is not hoed. But this crop is invariably fallowed for; either the whole year, or during the winter and spring: so that EVERY CROP which is taken is, in reality, a FALLOW CROP.

Hence, we see fields, which have borne crops of GRAIN, year after year without remission, during time immemorial, still affording, annually, portions of produce, which, in the management of some individuals, in some seasons, may be entitled to the name of *crops*. A fact, to which nothing, less than actual observation, could have induced me to give full credit. A fact, which proves, in a most interesting manner, the value of a due ATTENTION TO CROPS WHILE VEGETATING: a species of attention, which, in the management of the kingdom at large, is entirely omitted; excepting, perhaps, what is bestowed on an imperfect handweeding. It may be said, in general

terms, that, in most other districts, crops remain in a state of neglect, from seed time to harvest. While, here, the business of the arable process does not appear to be set about in earnest, until the crops be above ground!

The origin of this unparalleled attention to crops, WHILE GROWING, would now, perhaps be difficult to trace. In all probability, it originated in a kind of necessity, on the every year's lands; which, without it, must long ago have been wholly possessed, by one continued thicket of weeds. Its good effect being there seen, it would be received, by degrees, into the fallow fields: first, as an expedient, to save a foul crop; and, at length, as a practice.

The excellency of this custom, and the extent of its utility, are not confined to the field: the HOING OF CORN is done, chiefly, by WOMEN AND CHILDREN: industry is, of course, encouraged; and the parish levies probably lessened; or, what is equally beneficial to the farmer, the wages for MEN's labor are lowered: while, in the saving of seed, by this practice, the farmer and the community are still more immediately benefited.

12.

HARVESTING.

THE WORK OF HARVEST was, formerly, done chiefly, by HARVEST MEN; but now, in part, by THE ACRE.

The WAGES of harvest men are thirty shillings for the harvest; or a shilling a day;—with full board.

The method of VICTUALLING harvestmen, in this district, is singularly judicious. They have *no regular dinner*. Their breakfast is cold meat. Their refreshment, in the field, bread and cheese, with six or eight quarts of beverage. At night, when they return home, a *hot supper;*—and, after it, each man a quart of strong liquor; in order to alleviate the fatigues of the day which is past; and, by sending him to bed in spirits and good humour, to prepare him for the morrow's toil.

There is more than one advantage arises from this custom. All work, within doors,

in the middle of the day, is got rid of: and the advantage of continuing the work of the field, without a break, through the *prime part of the day*, is obvious; and is highly estimated by those who know the value of it, from experience. Conversing with an active good husbandman, on the subject, he exclaimed " Lord, Sir, what should we do now, (about noon), if we were to give our men a regular dinner! They must either go home to it; or we must bring it to them here, in the field; and while they were eating, and playing under the hedge, we should lose the hauling of two or three load of beans."

The hours of work are long;—from dawn to dusk;—especially when dispatch is more particularly requisite. The quantity of work done is above par; namely, twenty to thirty loads of corn; with one set of men.

13.

FARMYARD MANAGEMENT.

THE WINTER MANAGEMENT of the vale as an *arable* district, affords nothing of excellence; nor includes any noticeable defect; excepting the prevailing one of paying too little regard to the accumulation of manure: nevertheless, a few peculiarities require to be registered.

BARN MANAGEMENT. The *method of thrashing*, in use here, is that of the southern counties: the ears of wheat are occasionally lifted, and loose corn from time to time lightened, with the swipple; in order to raise up the parts unthrashed, and thereby expose them to a more effective stroke: a practice which is more easy, less hurtful to the grain, and perhaps not less expeditious, than the north-country method; in which the thrasher keeps on, with one even stroke, from the time the corn is spread upon the floor, until it be turned, or the straw shook off.

Winnowing is done here with the sail fan, in the south-of-England manner.

Chaff is expended on cart horses. Barley chaff is in good esteem:—some farmers, at least, prefer it to that of the "cone wheat;" —a long-awned variety.

YARD MANAGEMENT. It has been already said, that bottoming farm yards, with *mold*, is not a practice of this district. They are, however, sometimes littered, with *stubble*.

Straw is given to cattle, loose, in mangers and cribs, of various constructions. (See FARM BUILDINGS.)

It is not unusual, in the practice of this district, to let straw-yard cattle have a yard, foddering ground, or orchard, adjoining to the straw yard, as a LOBEY, to stray into at pleasure. This indulgence may be serviceable, perhaps, to the health of the cattle; but is certainly wasteful of manure.

14.

MARKETS.

THE PRINCIPAL MARKETS of this district, for CORN, are *Glocester* and *Tewkesbury*. *Cheltenham*, in the summer season, takes off its proportion of BUTTER and POULTRY. CHEESE is bought up, chiefly by *factors*; and the surplus of FAT CATTLE and SHEEP, after the country markets are supplied, goes principally to *Smithfield*.

MARKET PLACES never struck me, as a subject entitled to particular attention, until I saw the good effect which has taken place, by a reform in the market places of this district.

In 1783, the markets of Glocester, Tewkesbury and Cheltenham were kept on old-fashioned *crosses*, and under open market-houses, standing in the middle of the main streets; to the interruption of travellers, the disfigurement of the towns, and the inconveniency of the market people, whether sellers or buyers.

Now (1788), these nuisances are cleared away, and the markets removed into well situated recesses, conveniently fitted up for their reception.—A species of reform, which most market towns, in the kingdom, stand greatly in need of.

The old crosses and market houses are generally small, inconvenient, and now no longer adequate to the purposes, for which they were originally erected. In winter, they are chilling, and dangerous to the health of those who have to wait in them; especially women, whose habits of hardiness may not, now, be equal to what they were, in the day in which these erections were made. Besides, the corn market, the shambles, and the women's market are frequently scattered, in different parts of a town: whereas, in a square, inclosed with shops, shades, and penthouses; with shambles in the center; and a corn market at the entrance;—the whole are brought together; rendering the business of market commodious, and comfortable; epithets which, at present, can seldom be well applied to it.

In the instances under notice, the alterations were made, by the respective towns; at, no doubt, a considerable expence; the

interest of which is raised, by tolls, payable by the sellers: an inconveniency, which lessens, very considerably, the magnitude of the improvement.

This is an interesting subject, and closely connected with the present design. It would little avail the farmer to raise crops, without a market to vend them at. It is the grand center to which all his labors tend.

We may venture, safely I think, to start, as a position, that markets are, or ought to be made, the concerns of COUNTIES, at large; not of the particular towns, they happen to be kept in. They promote, indisputably, the general benefit of towns, and the portions of country, which lie immediately round them; but that of the latter more especially: and it would be equally reasonable to expect, that a market town should build a bridge, for the country people to come over to market, as to find them shops to sell their wares in.

Indeed, *weekly markets* are essentially necessary, in the present state of things, to the country; but not so to towns; which have markets, *daily*, in the shops of their own inhabitants: and that they require no weekly markets, London is an instance. In whole-

sale matters, as corn, cheese, &c. towns have no interest whatever: unless the *inns*, as they oftentimes absurdly are, be considered as the *town*: the mere *inhabitants* have none.

But although the inhabitants of *towns* have no necessity for a weekly market; those of *villages* would find themselves awkwardly situated, without one. They cannot, like the town's people, go every morning to the shop. One day in a week is full as much time as they can spare.

Nor would it be convenient to the *farmer*, to depend upon the shopkeepers' or the hucksters' calling upon him, for his produce, and giving him their own price. It is as convenient,—as necessary,—for farmers to go to market, as it is for merchants to go to 'Change;—to learn the current price, and take their choice of buyers; as well as to meet each other, and make the requisite bargains between themselves.

FAIRS are, in this point of view, still more convenient to the farmer. How should a grazier or a jobber know, that he has stock to dispose of, unless he had some means of *publishing* them? At the same time, how convenient are fairs to the grazier,

who can there take his choice of stock; as well as to the breeder, who may there make his election of price.

Towns were, no doubt, aware of these things when TOLLS were established. But tolls are fetters, which all fairs and markets should be freed from. They interrupt the business of the day; are the cause of endless dispute; and may, in these days, well be considered as the impositions of less liberal times, which ought to be done away.

Markets, more especially, are a universal good. They bring the producer and the consumer, hand to hand. Shopkeepers and hucksters are middle men, who must be paid for their time and labor; and whatever profit they receive is so much lost, either to the farmer or the consumer.

Tolls have the self same tendency. Either the seller or the buyer must pay them; and each has his plea of complaint. The tolls of Glocester market are very high—almost excessive—*3d.* butter—*2d.* poultry or eggs.—The market women, of course, complain of the hardship; while the town's people are still louder in their complaints; alleging that the sellers, taking the advantage of the toll, charge them doubly for

it. All taxes, eventually, fall on the consumer.'

This is a subject which has never, I believe, been agitated; but which is certainly entitled to the *highest* attention.

From the observations, which are here loosely thrown together, we may venture to draw, as a conclusion, that ALL FAIRS AND MARKETS SHOULD BE FREE:

And that a REFORM, in the MARKET PLACES and FAIRSTEADS* of this kingdom, is wanted: not so much for the conveniency of towns, as for that of the country.

* FAIRSTEADS in general, are still less commodious than market places. They are mostly confined to the *streets* (uncivilized usage) and sometimes every street in the town is a separate fairstead: so that it is impossible for a buyer to know what stock the fair consists of. When a market is brisk, much of it may be sold before he can possibly have an opportunity of seeing it. While in other cases, the streets are so narrow, and the fairstead so confined, that the value of stock cannot be estimated with sufficient accuracy. A square paddock, paled or walled round; with one gate to admit, and another to let out stock; the cattle being placed on the border, properly formed to receive them; and the sheep-pens in the center, (in the manner of Smithfield market) would perhaps be found, in preference to all others, the best form for a fairstead. How easily might every market town be furnished with such a paddock.

We have no reason, however, to expect, that corporations, and lords of manors, will even give up their present tolls, much less make the requisite reform, without some adequate recompence.

The COUNTIES, respectively, have the care of their gaols, and bridges; and it strikes me, that the county rate would be the proper fund, for defraying the expence of a reform, in their markets; and for keeping in due order, fairsteads and market places.

A reform in WEIGHTS and MEASURES has long been spoken of, as a thing desirable. It would be well if some GENERAL REFORM, in the fairs and markets of these kingdoms, could be brought about. While they remain in their present BARBAROUS state, we cannot have full claim to the character of a CIVILIZED NATION.

15.

WHEAT.

I. THE SPECIES of wheat, in cultivation here, are

1. "CONE WHEAT" or "BLUE CONE:"—a variety of TRITICUM *turgidum*.* The straw tall and reedy: the ear long, and of a dusky-purple color: the chaff downy, with a very long awn, which falls off when fully ripe. The grain brown, tolerably well skinned, and of a hard flinty contexture; affording a *thirsty* flour; in good esteem with the miller and baker. This is the prevailing wheat of the district;—whose produce probably is three fourths of it of this species.

* Not, however, the variety which is entitled to the distinction *cone;* its ears being remarkably *cylindrical.* In Northwiltshire, I met with the TRUE CONE—or *triticum quadratum*—of Miller:—the base of the ear large and square (hence it is there called "square eared wheat") but the upper part is *conical*, tapering to a point. This variety is remarkably *turgid;*—the grains, in the base of the ear, bursting open the chaff, before harvest, showing themselves plainly to the eye.

2. "LAMMAS WHEATS:"—varieties of TRITICUM *hybernum*. Every thing that does not bear awns is "lammas;"—which is divided into "red-straw" and "white-straw" —or rather into *red-chaff* and *white-chaff* lammas. Of the latter there are two entirely distinct sorts; the chaff of one *smooth*, the other *villous*. They frequently grow together in the same piece, and the distinction probably passes unnoticed.

3. TRITICUM *æstivum*,—or SPRING WHEAT: a species which has been pretty freely tried, in this district; but which is not, at present, likely to gain an establishment.

The CULTIVATION of wheat in this district, cannot, altogether, be offered as a model: nevertheless, it must not be passed over, in silence. It has one excellency, at least, which entitles it to the highest attention.

II. The SUCCESSION has been mentioned. *Beans*, planted and hoed may be considered (except in the old fallow fields) as its common predecessor. *Peas*, cultivated in the same manner, likewise precede it, on light land:—wheat being grown, here, on every species of SOIL.

III. The SOIL PROCESS, after pulse, is sometimes singular; and is entitled to notice. The *stubble* of beans is pretty generally *drawn*;* and I have seen, in more than one instance, the surface *breast-plowed*, after peas as well as beans, previous to the seed plowing for wheat.

This is to me a novel practice. I have not, out of this county, seen the breast plow used in any other intention, than that of paring off the surface of grassland, in whole sods. But the operation, in the practice under notice, is done with a very different design. The paring is not attempted to be turned in the nature of a sod; the intention is merely that of severing the roots of weeds beneath the surface; in order that they may be harrowed out and destroyed, before the wheat be sown. This, for the class of *creeping perennial weeds*, is a ready and effectual mode of extirpation: also the *strong-rooted*,

* For *fuel*; either by the farmer; or, more generally I believe, by his laborers' wives and children; who have the fuel for their labor; a waggon being generally placed in the field, to receive it, as it is drawn. Bean stubble, plowed into the soil, is thought to afford refuge for SNAILS; which sometimes do the wheat crop great injury. It is also thought *to keep the soil too hollow!*

and even the *worm-rooted* tribes are, probably, essentially *checked* by this practice; especially as the plow, presently afterward, makes another separation at a greater depth; so that their feeding fibres, as well as their foliage, are to be produced afresh.

The only objection, to this practice, is the expence: namely, six or seven shillings, an acre. In a country, however, where a single plowing costs more money, the expence cannot be deemed excessive.

But, on a soil free from stones, as the soils of the vale almost invariably are, the same or a similar effect may be produced, in a much easier way. For although I had not seen a breast plow used in the operation; the utility and effects of the operation, itself, are familiar to me. In my practice in Surrey, I pursued the operation of SUB-PLOWING to, perhaps, its farthest limits: gaining a full view of its merits and defects. The greatest difficulty lies in getting an implement to work, in all soils, and in all seasons. A light wheel-plow,—with a broad sharp share, and without a moldboard,—drawn by one or two horses, is I believe, the best implement which can be used in

this operation: which, in some cases, is very valuable.*

IV. SEMINATING. The TIME OF SOWING is November and December! If a farmer get his seed wheat into the ground, before Christmas, he is thought to finish in due season.

How widely different are the customs of countries, with respect to this important operation. Customs which are, no doubt, founded, in some degree at least, on the experience of ages. This country is nearly a month behind the rest of the kingdom. It is argued, by men of experience, in support of this extraordinary practice, that "late-sown wheats are apt to be better headed"—are more productive of *grain*—than crops which are sown more early: and the argument, duly limited, may have some foundation. But it is very probable, that the *peculiar* lateness of wheat seed time, in this district, is not essentially necessary, to the natural situation of the vale, or to the nature of its soil; but arises, in some degree, out of its present peculiarity of management. The

* See MINUTES in SURREY. Also WEST OF ENGLAND, District, SOUTH HAMS.

unproductiveness of the early sown crops may be, in part, owing to the host of weeds with which they have to encounter; while those which are sown late, escaping the autumnal vegetation, have fewer enemies to contend with, the ensuing summer.

There are two disadvantages which evidently attend late sowing. The season is uncertain, and the requisite quantity of seed is increased. Much of it never vegetates, and much of that, which, if sown in due season, might have vegetated, falls unavoidably a prey to vermin of different kinds.

Nevertheless, such is the strength of the vale lands, and such the advantages of hoing, that the QUANTITY OF SEED sown, in this district, is *considerably less* than that sown, I believe, *in any other part of the kingdom*. Even at Christmas, the quantity seldom exceeds *two bushels* an acre! *Six pecks*, in September—October would afford as full a sufficiency of plants; and, in the more early part of the season, *seven pecks, sown broadcast*, is the usual quantity of seed!*

* SETTING WHEAT. This practice is not here in use; except on a small scale. In the little encroachments, round Corse Lawn, (a well soiled and very extensive common-sheep-walk westward of the Severn) I

The measure, it is true, is large: full nine gallons and a half: so that the seven pecks contain near seventeen gallons. But, in Norfolk, three bushels containing near twentyfive gallons, is usually sown, some weeks, perhaps, before the seed time commences in this country: two bushels and a half; about twentytwo gallons, may be taken as the middle quantity of seed wheat, throughout the kingdom.

V. HOING. But, in the vale of Glocester,—WHEAT IS UNIVERSALLY HOED: a fact which does honour to ENGLISH AGRICULTURE; and which I enter in this register, with more than ordinary satisfaction.

The hoing of wheat is one of those valuable operations in husbandry, which are less difficult, and more effectual, in practice, than in theory. I have examined it, with extraordinary attention; and shall bestow upon it a minute analytical description.

1. The number of hoings.
2. The times of hoing.
3. The width of the hoe.
4. The method of hoing.

have observed several patches of wheat, planted in rows, with "setting pins," in the manner beans and peas are planted in this district.

5. The price.
6. The advantages.

1. THE NUMBER OF HOINGS. Two hoings are generally spoken of; but are executed, only, in the practice of superior husbandmen. One hoing and a handweeding, however, are essential to good management. Two hoings, the last likewise a handweeding, might be deemed perfection. The first hoing, if given in due time, will unavoidably miss many weeds, which will afterwards run up to seed, and foul succeeding crops.

Sometimes, the crop is HARROWED early (about the time of the first hoing) and hoed some time afterward. It is likewise, and not unfrequently, HARROWED presently after the first hoing: a good finish, which not only loosens the soil, and lets down a supply of air to the roots of the corn; but effectually disengages the weeds from the soil; in which they are liable to be refixed by the feet of the hoers.

2. THE TIMES OF HOING. The first hoing is begun in April, or as soon as the season will permit. It ought to be finished, before the plants begin to "branch" stock—tiller—or make their vernal ramifications. The

sooner the second hoing succeeds the first, the less difficulty there is in doing it; but the later it is given, the more serviceable it proves; provided the crop be not immediately injured in the operation.

3. THE WIDTH OF THE HOE. It is generally understood, that the size of the hoe ought to be proportioned to the fullness of the crop: a thin crop requiring a wide hoe —one which is thick upon the ground, a narrow one. The narrowest I have measured has been three inches; the widest five inches. The form is that of the turnep hoe: except that the corners are, or ought to be, rounded off.

4. THE METHOD OF HOING. If the plants stand sufficiently wide, to admit the hoe between them, the entire surface is stirred. Where they stand closely, and weeds do not appear, they are passed over. Thus the tops of high ridges are, frequently, too rank to admit the hoe; while the sides of the lands are entirely worked over with it.

The *art* of hoing wheat is much less difficult, than that of hoing turneps; which require a quick eye and a steady hand, to single them out, at proper distances: whereas, in hoing wheat, the plants, and of course

the spaces between them, are *given*; all the hoer has to do, is to cut over the vacant patches, and draw the hoe between the plants;—length way, if the plants will admit of it; if not, and weeds intervene, to force through the end, or the corner: in doing which the plants are not much endangered; unless the hoe be very sharp: for the same hoe, which will stir the ground, and cut up seedling weeds, will slip over wheat without injuring it. Wheat, rooting deep, is not easily eradicated; and should part of the blades be cut off, they will, provided the crown be left, re-spring; though they will be checked by the accident.

Hence WOMEN and CHILDREN may, with sufficient safety, be trusted with hoes among wheat; and, where the soil is tolerably free from rootweeds, soon become sufficiently expert.

But if couchgrass abound among wheat, which it too frequently does, not only more labor, but greater skill, is requisite. Couchgrass bears the same affinity to wheat, as the wild mustard does to turneps; an adept will generally distinguish the plants, with sufficient readiness; but, in some cases, they

resemble each other, so nearly, as to be easily mistaken for one another, by the inexperienced. Besides, in this case, the hoe is obliged to be kept with a sharp edge; otherwise it will not take the couch: this, of course, renders it a more dangerous implement in the hands of the inadept. Therefore, under these disgraceful circumstances, men ought to be, and frequently are, on the every year's lands, employed in the hoing of wheat.

This, however, does not operate against the general principle of HOING WHEAT BY WOMEN AND CHILDREN. No man who has any regard for his interest, or to his character as a husbandman, *attempts* to cultivate wheat in a bed of couchgrass.

The requisite *distance* between the plants, depends on the species of wheat, and the state of the soil. Cone wheat is found to branch more than lammas; and either of them will spread wider, on a rich, than on an impoverished soil. If the plants be strong, ten or twelve inches is not deemed too great a distance.

It might, however, be wrong to set out close growing plants, at that distance: plants may acquire, during the autumn and winter,

habits agreeable to their respective situations: the single plants to spread,—those in groups to run upward; and it might be injurious, in the spring, to place them in new situations. Nevertheless, it is probable that, in many cases, the crop would be improved, if the underling plants, which rank wheat more or less abounds with, were in due time removed. Crowded plants produce feeble straw, and puny imperfect grain: and, from the attention I have paid this subject, I am of opinion, that a five inch hoe might be used, freely, in the fullest crop. I do not mean, in setting the plants out, singly, like those of turneps; but merely in lessening their number; thereby giving those which were left a sufficiency of air and headroom. A turnep requires room at the root; wheat at the ear: and it is a thing of no great consequence, perhaps, whether a given square foot of atmosphere be filled with ears from one, two, or a greater number of roots.

5. PRICE. The ordinary price is half a crown, an acre, for the first hoing. But the requisite labor varies with the state of the crop, and the nature of the soil. A full clean crop, on a free soil, wants little labor. Nor,

on such a soil, though foul with seed weeds, is the labor difficult, provided the crop has not been suffered to run up, and hide the surface. On the contrary, a thin tall crop, foul with couchgrass, on a stubborn soil, in a dry season, requires more labor than is ever paid for. I have seen a man hoing wheat, under the last mentioned circumstances, at 3*s*. an acre. But he barely earned day wages; yet did not effect his work. If the soil be tolerably free, the season kind, and the crop taken in a proper state, as to growth, notwithstanding it may be foul with seed weeds, there are women who will hoe half an acre, a day. Such a crop is not unfrequently done, at 2*s*. an acre.

The second hoing is, frequently, more tedious, than the first; by reason of the crop, hiding the ground, and being in the way of the hoe.

6. The ADVANTAGES of hoing are many. The seed weeds are cut off; the root weeds checked; and the crust of the soil broken. By thus giving the roots a full supply of air, and the plants, themselves, the full possession of the surface,—they acquire a vigorous habit, and are induced to branch out, spread over the surface, and fill up every vacancy;

by that means increasing their own strength, and keeping their enemies under. If a simile might be used, on this occasion, we should say——the soil is a country contended for,—the corn and the weeds contending armies:—By destroying, or checking, the advancement of the one, we give the other an opportunity of gaining possession.

Besides the advantages of the growing crop, those of future crops ought to be considered. The hoe destroys, in the first hoing, a class of weeds, which handweeding seldom or never stoops to. Indeed, before that operation usually takes place, they are shrunk beneath notice: they flourish, however, at a critical time;—the time of branching;—and are probably the cause of greater mischief, than rises to common observation. The species, which come most particularly within this class, are the *ivy-leaved speedwell* or *winterweed*,—*chickweed*, and *groundsel*: while *hairough*, one of the worst weeds of wheat, falls an easy victim to the hoe. The *shepherdspurse*,—*common* and *scorpion mousears*, *fumitory*, *hogweed*, and other low-growing weeds, are cut off, imperceptibly, in HOING; but are seldom the objects of HANDWEEDING: consequently,

shed their seeds upon the soil, and remain, from year to year, a nuisance to the growing crop.

VI. In the HARVESTING of wheat, we find nothing particularly noticeable; except the practices of letting it stand, until it be unreasonably ripe,—of cutting it very high,—and of binding it, in remarkably small sheaves. The last requires some attention.

The size of the sheaf is here proportioned, in a great measure, to the height of the crop. The sheaves being, invariably, bound with one length of straw. The practice of making *double bands*—a practice common to the southern, eastern, northern, and midland counties, appears to be unknown in this district. This year, the straw being somewhat short, the sheaves, (if such they may be deemed) are mere handfuls:—many of them may be grasped with the fingers; —few of them are equal to half a common sheaf;—three or four of some of them (especially in the every year's fields, where perhaps there are more weeds than corn to bind up) would not make a sheaf of some districts.

The advantages and inconveniences of this extraordinary practice require examination.

The inconveniences arise, chiefly, from the number of sheaves. The crop takes more binding. The trouble of band-making, however, is evaded. But it is certainly more tedious, to set up, pitch, load, unload, stack, &c. than it would be if bound in larger sheaves; and, in these operations, without any obvious counter advantage.

The practice, nevertheless, has its advantages. Small sheaves require less field room, as it is termed, that is, less time between the cutting and the carrying, than large sheaves do. And, what is equally valuable, if they be caught in wet weather, they are much sooner dried again: consequently, the danger of growing is not so great, as when the crop is bound in large sheaves; which frequently require opening, when a small one may be got dry, without that tedious and dangerous expedient.

The practices of cutting high, and binding with single bands, have probably arisen, like that of hoing wheat, out of a kind of necessity, on the every year's lands; on which,—if the weeds as well as the wheat

were to be reaped, (by cutting the latter low) and the whole bound up together in large sheaves,—scarcely any length of time, would cure them to the center. The great length of cone wheat may have assisted in establishing the practice.

The *size of sheaves*, uninteresting as it may appear to those who are unpracticed in the minutiæ of husbandry, is a subject of some importance. That the sheaves of wheat are made much too large, in many districts, and perhaps in general, is as evident as that, in this district, many of them are made smaller than any good purpose can require. The difficulty lies in ascertaining the *happy medium*. We may venture to say, without risk, that the size ought to bear some proportion, to the state of the crop. At present, it may be said to vary, from a handful, to an armful. How far it ought to vary, and what the proper sizes of the two extremes are, I will not, here, take upon me to determine.

The STUBBLE and weeds are generally mown off, in swaths, soon after harvest, for litter. It is not unusual to sell the stubble on the ground. The price, sometimes, so high as 5*s*. an acre; off which perhaps the

buyer will carry a full waggon load! A quantity, perhaps, equal to that carried off in sheaves at harvest.

VII. The PRODUCE of wheat, in this district, is below mediocrity: notwithstanding the superior quality of the soil. The par produce of the district is laid at *eighteen* bushels an acre (the measure large). I have heard men talk gravely of *twelve* bushels; even in the fallow fields. I have myself seen, in one of the every year's fields, not less perhaps than twenty, perhaps not less than forty acres, which could not be laid at more than *eight* bushels an acre!

I do not mention these things, to expose the husbandmen of the vale of Glocester: I have no motive whatever to lead me to such a conduct. Nor do I, on any occasion, I trust, suffer any motive, whatever, to lead me to censure, other than the facts which appear before me. I have no partiality to this or that district. To enable me to prosecute, with greater diligence, the design I have entered upon, I endeavour to view *each* district *as my own:* and wish to see the several parcels of my wide domain; or,—in language more suitable to the subject,—the several cultivated districts of this island,

on a par, as to cultivation; and as near perfection, as the present state of the art is capable of raising them. On the present occasion, I wish to prove, by the most substantial evidence, the necessity of a CHANGE OF MANAGEMENT.

The district contains, without dispute, some plots of cold unproductive soil. Every acre of it, which lies out of the water's way, may, nevertheless be said to be WHEAT LAND. Three fourths of it is land of such a quality, that it ought never to be sown with wheat, without a fair probability of THREE TO FOUR QUARTERS AN ACRE. The present unproductiveness is a loss to the community; and reflects equal disgrace on its owners and its occupiers.

There must be some cause or causes of this striking deficiency of produce; and it behoves the landowners to ascertain and remove them: their interest is the most materially concerned.

If the deficiency be owing to the open fields being worn down by arable crops, (which I believe is one very great cause of it)—why let them remain in their present unprofitable state? Why not INCLOSE them, and let the lands be laid to grass?

If the deficiency be caused, by the land being chilled with surface water (as much of the central parts of the vale undoubtedly is) why not obtain an act of SHORES: and, under it, keep them, as they may undoubtedly be kept, sufficiently free from it.

If the coldness of the subsoil be the cause, (as it may be in some places) encourage UNDERDRAINING.

If, on examination, the cause of a deficiency of produce should appear, to be principally owing to a deficiency of tillage (as in the every year's lands it assuredly is)—give due encouragement to FALLOWING. And, by these and every other possible means, check the present disgraceful practice of growing eight bushels of wheat, an acre, on land which is, by nature, enabled to bear four times that quantity.

The reform, which is here offered, is wanted in various other districts of the kingdom; in which the wheat crop, by injudicious management, is too frequently disgraceful to British husbandry. The wheat crop, above all others, should not be *risked*. No man ought to sow wheat, where he has not, with a common season, a moral certainty of a crop.

16.

BARLEY.

THE QUANTITY of barley, grown in this vale, is very considerable. For, notwithstanding the uncommon *coldness* of much of the vale lands, this is the only spring *corn* which is cultivated on them.

The only SPECIES, which I have seen cultivated in the district, is the common LONG-EARED BARLEY: HORDEUM *zeocriton*.

In the CULTIVATION of barley, one circumstance, only, is noticeable: namely, that of its being made use of, on the every year's lands, as the *cleansing crop*.

It appears to be a leading article of faith, among the occupiers of these lands, that if a week or ten days of fine weather, in the spring, can be had, for the operation of harrowing out couch; and if, after this, a full crop of barley succeed; especially, if it should be fortunate enough to take a reclining posture; the business of *fallowing* is effectually done:—the soil being thus raised

to a degree of cleanness, and tilth, sufficient to last it through a series of succeeding crops.

Hence, to catch a few fine days to fallow in, barley is sown, on these lands, very late: —the middle of May—sometimes the latter end of May—sometimes the beginning of June. This year (an awkward season) barley was sown towards the middle of June. And, to obtain a full crop, three to four bushels, an acre, is invariably sown; under the idea, that a full crop of barley, especially if it lodge, smothers all sorts of weeds; even couch grass itself. And true it is, that, under lodged barley, the soil grows mellow, and weeds get *weak*.

Nevertheless, I mean not to recommend a practice, which is already too prevalent; not in this district, only, but in others; where we see men catching at a barley fallow, as a twig which will keep their corn above the weeds, a few crops longer. The consequence is, the barley crop, by being sown out of season, is of an inferior value, and succeeding crops, by having a host of weeds to struggle with, are rendered equally unproductive.

If the land be tolerably clean, and the

season favorable, a barley fallow may, no doubt, be of essential service. But there is not one year, in five, in which, even land which is tolerably clean, can be sown in season, and at the same time be much benefited by it, for future crops.

I am well aware, that even land which is foul with couchgrass, may, by harrowing, raking, and handpicking, at an unlimited expence, and sowing the barley some weeks behind its time, be made to appear, to the eye, perfectly clean, at barley seed time; but whoever will examine it, after harvest, or the ensuing spring, and compare its state, then, with that of land, which has had a turnep or a whole year's fallow, will scarcely bestow the labor of harrowing, and raking, and picking; and risk the loss of his barley crop, a second time.*

I have said the more on this subject, because it is an important one. I know no practice so popular, and at the same time so

* I speak, here, of land which is kept under a course of arable crops; rather than of that which is occasionally broken up from grass, and laid down again, when two or three crops of corn have been taken: a practice which I may have occasion to speak of fully, in another place. See the MIDLAND COUNTIES.

destructive of good husbandry, as that of *tantalizing foul land with a barley fallow.* And I offer my sentiments upon it, in this place, because I hope I shall never have a more suitable opportunity.

Barley is HARVESTED loose: mown with the naked sithe; lies, in swath, till the day of carrying; and is cocked with common hay forks.

The MARKETS, for barley, are Glocester and Tewkesbury. The buyers, maltsters of the district, and factors who buy for the Bristol brewers.

The PRODUCE, on a par, three quarters an acre: the measure very large.

The QUALITY of the vale barley is such as recommends it to the maltster, in preference to hill barley, that affords a more sightly sample. But there seems to be a quality, in the soils of these vales, which gives strength and richness to every article of their produce.

17.

OATS.

OATS, it has been said, are not a produce of this district; at least, none of the CULTIVATED varieties are: the WILD OAT grows, every where, with unusual strength and productiveness.—Many lasts of it are, every year, no doubt produced.

I have never, however, yet seen a low-situated, strong-soiled, cold-subsoiled country, which has not been found, on experience, to be better adapted to oats, than to barley. And I have not, in this district, met with any experience, or indeed with any reasoning, which attempts to prove the contrary. Custom alone is pleaded.*

* Since writing this article, I have received, (from very respectable authority) in answer to a query on this subject, that "the vale land is natural to oats; which, if once sown and shed their seed, will remain in the land for ever;" that is, will become a weed to future

This exclusion of the oat crop from the lands of the vale,—extraordinary as it appears at first sight,—may perhaps be accounted for, in this way. The monasteries preferred ale to oaten cake: barley, of course, became the favorite crop: the monasteries were numerous: the lighter lands were not adequate to the demand:—the barley crop, therefore, was necessarily extended to the strong lands. The monasteries, it is true, have long been dissolved; but the spirit of improvement (excepting a partial reform which has lately taken place in some of the fallow fields) has slept ever since. The present system of management

crops: and further, that under this idea, "few oats are given, in the vale of Evesham, to farm horses (using beans in their stead) as they are supposed to pass through them in a vegetative state." These fears, however, appear, to me, to be groundless. I have not, in any district, found the *cultivated oat* lie, longer than one winter, in the land: nor have I, in this district, found a *cultivated oat*, in the character of a weed: for although I have discovered some few individuals, with the grains of the lower part of the panicle, nearly smooth; yet the upper parts of the panicle have always evinced them, plainly enough, to be the *genuine wild oat:* the NATURAL SPECIES.

(of the arable land at least) was probably formed, under the influence of the monasteries; and has continued through succeeding generations, without receiving any material change.

This, however, by the way. I do not mean to censure the vale husbandmen, for not sowing oats, in preference to barley. I have had no opportunity of comparing their produce. Nevertheless, I would wish to recommend a trial of oats, on the stronger colder lands, in the area of the vale. These lands can seldom be got sufficiently fine, for barley. Much seed must every year be buried in them. I have seen barley sown over a surface, on which some men would have been afraid to trust oats. The clotting beetle, it is true, fines the immediate surface, and gives relief to many grains which lie near it: nevertheless, those which fall down the deeper fissures must, in the tender nature of seedling barley, be irretrievably lost.

On the contrary, oats might, almost in any year, be sown without hazard, or difficulty; and, in the fallow fields, might be got in, soon enough, to break up the fal-

lows, without six or seven horses to one plow. Besides, in a dairy country, the fodder from oats, if the sort were well chosen, would be found of much more value—more of it—and of a better quality—than that of barley. While the produce of grain,—if theory and comparison may in any case be trusted, would more than overbalance, in quantity, the comparative difference, in price: more especially as oats would be a crop new to the vale land. See YORK, ECON. Section, OATS.

18.

PULSE.

AT length, we have passed the ground of censure; and are now entering on a subject of praise, to which it will be difficult to do justice: so *mixed* is the management of this interesting district. Its cultivators might be called, without incurring a paradox, THE BEST AND THE WORST FARMERS IN THE KINGDOM. Were they as attentive to the SOIL, in freeing it from *superfluous water*, and from the *roots* and *seeds* of weeds, as they are in freeing the CROPS from the *herbage* of weeds—they might well be styled the first husbandmen in Europe.

PULSE, whether BEANS or PEAS, separate or mixed, are, in the ordinary practice of the istrict, PLANTED BY WOMEN, and HOED BY WOMEN AND CHILDREN, once, twice, and sometimes thrice; giving the crop, when the soil is sufficiently free from root weeds, a gardenly appearance; which is beautiful

to the eye, in the former part of the summer; and which, at harvest, if the season prove favorable, seldom fails of affording the cultivator more substantial gratification: while the soil, under this practice duly performed, is left in a state, extremely well adapted to future crops; particularly the wheat crop.

I. The SPECIES of pulse in cultivation, here, are

1. BEANS—the large hog bean: a variety of VICIA *faba*.

2. GREY PEAS; and

3. WHITE PEAS: varieties of VICIA *pisa*.

4. PEABEANS; namely a mixture of beans and grey peas; in various proportions. Generally, a few peas among a large proportion of beans: I have, seen, however, on the lighter lands, a few beans among peas; by way I suppose, of *natural rods* to the crop.

The CULTIVATION of pulse, in this district, requires to be registered in detail.

II. SUCCESSION. Pulse succeeds, invariably, a corn crop: namely wheat, in the old fallow field course; barley, in the new; —either wheat or barley, on the every year's lands.

III. SOIL. Every species. On the stronger soils beans, or beans and peas mixed; on the middle soils generally the same; on the lighter soils in the neighbourhoods of Glocester and Cheltenham, peas, of various sorts. But, in the area of the vale, few peas are grown; except among BEANS; which are, throughout, the prevailing crop; and which, alone, are entitled to particular attention.

IV. TILLAGE. Begin plowing, as soon after Christmas, as the season will permit; fetching up the soil, as deep as the plow will turn it:—nine, ten or more inches deep; and letting it lie in whole furrow "to take the frost."

V. MANURE. The bean crop, in the common practice of the district, is seldom manured for.

VI. SEED PROCESS. This will require to be particularized.

1. THE TIME OF SETTING. Begin, about Candlemas; or, as soon after that time, as the land can be got upon with the harrows, to break the plits, and level the surface for the setters. The soils of this vale are mostly of such a nature that, after being frozen, they fall like lime; once going over with

the harrows being, on the colder soils, sufficient to reduce the surface to powder, as fine as ashes; leaving not the trace of a whole furrow.

2. The METHOD OF SETTING varies, in different parts of the district. In the central and southern quarters, the prevailing practice is to set *across* the ridges, *by the eye*, without a line! About Cheltenham, and along the northern border, it is a practice, equally prevalent, to set *lengthway* of the ridges, *by a line*. While, about Tewkesbury, and towards Deerhurst, it is common to set *by a line*, *across* the ridges.

In theory, a *line* appears to be necessary. In practice, however, it is otherwise. Women, who have been long in the habit of setting without one, are able to go on, pretty regularly, by the eye alone; and the young ones are trained up, by putting one of them between two who are experienced. Upon the whole, however, a line appears to have its uses. The soil becomes, in all probability, more evenly occupied by the roots; and the plants are somewhat more conveniently hoed, when the seed is planted in straight lines, with equidistant intervals.

Each setter is furnished with a "setting pin," and a "tuckin;" namely, a satchel (hung before, by a string round the waist) to carry the beans in. The *setting pin* resembles the gardener's dibble: with, in general, however, a valuable improvement: a cross pin, or half crutch, near the top, to rest the palm upon; with a groove, on each side of the main pin, to receive the forefinger and the thumb. The length of the dibble (which is about two inches square in the middle tapering conically, to a sharp point) is about eight inches; of the handle, about four.

In *setting*, the women walk sideway, to the right; with their faces toward the ground which is set: the last row, therefore, is immediately under the eye, and the difficulty of setting another row, nearly parallel with it, is readily overcome by practice. An expert hand will set with almost inconceivable rapidity.

The *distance* between the rows varies, from ten to fourteen inches. Twelve inches may be considered as the prevailing width, throughout the district. The distance, in the rows, about two inches; making the holes as close as can well be done, without

their interfering with each other;—and about two inches deep; dropping one bean in each hole.*

3. The QUANTITY OF SEED—from two and a half to three bushels an acre.

4. The PRICE OF SETTING—sixteen to eighteen pence a bushel: costing from 3*s*. 6*d*, to 4*s*. 6*d*. an acre.

The practice of setting, *by the bushel*, appears to be, in one particular at least, very injudicious. Instead of a single bean being assigned to each hole, two, and sometimes more, are put in, that the bushel may be the sooner emptied: for the same purpose, and with the same dishonest intention, a handful will, not unfrequently, be thrust into a hole, and covered up with mold. The only danger, in setting *by the acre*, would be that of

* In the Cheltenham quarter of the district, I have observed a singular method of setting *peas*;—not in continued lines; but in clumps, or tufts; making the holes eight or ten inches from each other; putting a number of peas in each hole. This is called "bunching" them. The hoe has, undoubtedly, in this case, greater freedom: all the danger arising from the practice is, that the soil is not so evenly and fully occupied by the roots, in this case, as they are, when the plants are distributed in continued lines.

the seed being put in, too thin. But it being a notorious fact, that beans, which stand thin, are (under the same circumstances) invariably better podded, than those, which stand in a close crowded state;—it is highly probable, that, of the two evils, setting by the acre would be found the least.

5. The COVERING is generally done with tined harrows, drawn once in a place. If, however, the soil be in so light, so floury a state, that the tines pull up the beans, a thorn harrow is generally made use of, for the purpose of covering the seed.

VII. VEGETATING PROCESS. Presently after the beans are above ground, the surface is sometimes loosened with the HARROW, previous to the HOING.

TIME OF HOING. The first hoing is given, as soon as the plants are free from the danger of being buried by the hoe. They ought, if the weather permit, to be begun upon, before they be a hand high.

The METHOD OF HOING is the common one, which is practised by gardeners, in hoing drilled crops. The intervals are cut-over, as close to the plants, as can be done with safety: and, if a gap or vacancy occur

in the row, the hoe is drawn through it: the hoer taking two, and sometimes three intervals, at once.

The WIDTH OF THE HOE, for beans, I believe, is invariably five inches. In this case, the corners may be kept on, and the edge kept sharp, with little fear of injury.

The SECOND HOING is, or ought to be, deferred as long as it can be with safety. It is, however, or ought to be, always finished, before the beans begin to blow: it being considered very injurious to the crop, to hoe it when the "blows are on."

The second hoing is still *flat*,—as the first. I have not seen an instance, in this district, of beans being earthed up.

In the second hoing, the rows are, or ought to be, carefully HAND-WEEDED. Not a weed should be left standing. Beans cannot blow among weeds: and every one now left, furnishes the soil with a fresh supply of seeds, for the annoyance of future crops.

GENERAL OBSERVATIONS ON HOING. The second hoing is essentially necessary, to common good management. Without it, the first is of little avail: it may loosen the

soil, and give a temporary relief to the young plants; but the number of weeds, *at harvest*, will be nearly the same, as if it were not to take place; for though, no doubt, it destroys numbers, it unlocks the seeds of others, which rise up in their stead, —high enough to injure the growing crop; and to give a supply of seeds to the soil.

Weeds injure beans, and all pulse, in a way, in which they have it not in their power to hurt corn. Corn bears its seed on the summit of its stem. The weeds must be aspiring, indeed, if it cannot blow in defiance of them. Nor, during the maturation, is the grain (in ordinary cases) liable to be overshadowed and crowded by weeds. On the contrary, beans throw out their seed from the sides of the stems; down to within a few inches of the ground; provided they have room, air, and sun enough, to encourage them to throw out blossoms, and to enable them to bring the pods to due perfection. And it is observable, that a crop of beans seldom turns out productive, unless the pods are formed low on the stems.

Hence, the utility of the first hoing;—to prevent the weeds from crowding the beans; thereby giving them a tendency to run

upward, and preventing them, effectually, from forming the necessary rudiments, below: and, of the second;—to give the beans an opportunity of blowing, as well as of maturing their pods, without the interference of weeds.

Hence, likewise, the unproductiveness of a thick-standing rank crop; which, by drawing up the individuals, tall and slender, forms a shade below, and prevents a due circulation of air; the plants, in this case, *operating as weeds to each other*. And hence the use of THINNING a rank crop of beans, whenever they show a tendency to draw each other up tall and "rammelly;"—a species of crop, which, it is well understood in this district, fills the rick yard, but not the granary.*

The PRICE OF HOING, is generally six shillings, an acre, for the two hoings and the "handpulling;"—more or less, according to the nature of the soil, the height of the crop, and its degree of foulness.†

* TOPPING, if done in due season, assists in the same intention.

† The HORSE HOING of beans is not in any degree of practice; the only instance of deviation, from the common practice of handhoing, was one, in which an ASS

VIII. HARVESTING BEANS. The method of harvesting varies with the length of the crop.

A short low-podded crop is necessarily mown;—usually with a naked sithe; letting the plants drop upon their roots. Having lain some time to wither, in this scattered state, they are gathered, with common forks, into swath-like rows, on the sides of the lands: where, having lain a further time, proportioned to their ripeness, their weediness, and the state of the weather, they are made up into wads, or bundles, with the same implement, and set upon the ridges of the lands; remaining, in that state, until they be fit for hauling. If the crop be stouter, it is sometimes bound after the sithe, and dried in shuck.

But tall beans are usually cut, with a reaping hook, and a hooked stick; with which, instead of the hand, they are gathered.

REAPING BEANS. The larger end, or handle, of the *gathering hook* is eighteen

was made use of in this operation! Seeing the smallness of the feet, and the narrowness of the tread, of this animal, it appears to be singularly adapted, on free light soils, to the operation.

inches long, the shorter end, or hook, twelve inches; its point standing out about twelve inches from the handle. The *reaping hook*, in this operation, is used in a singular way; *striking* with it beneath the gathering hook; making a sweep as with a sithe; driving the cut beans forward, until about half a moderate sheaf be collected.*

In this case, they are left awhile to wither, in open reaps, and are afterward, either bound in sheaves, and set up in shucks, or, much more usually, are set up in what are termed "HACKLES:"—singlets of unusual size; and of a construction sufficiently singular to merit description.

The reaps are generally gathered up, by two boys; who, taking them in their arms, singly, adjust their buts, by letting them fall upon them; thereby giving a level even base. Three or four of these reaps (about half a sheaf each) are set up in a hollow cone-like form; as flax is sometimes set up, after being rated; or as hop poles are sometimes piled. A man follows, and ties a band, made of three or four bean stems —a length of peashalm, or a twisted rope of

* Query, has the HEWING OF WHEAT arisen from this practice? See WEST OF ENGLAND.

long grass,—near the top of the hackle, as it stands: and, to secure it still more from the wind, as well as to prevent its yet leafy broom-like top from catching driving showers, and conveying the rain water down into the body of the hackle,—he draws a single stem, from the middle of it, until only a few inches of its but remain; or enters one which he finds loose, a similar depth: then, taking the whole top in his hand, with the long stem in the center of it, twists it round, in a spiral manner; thus making the hackle a perfect cone; its apex resembling the point of a snail-shell; and fixes it in this form, by winding the single stem round the top; burying its end within the hackle.

The crop remains, in this state, until it be taken up by the carriages;—the *Glocestershire hackle* not being rebound, like the *Yorkshire gait*, previous to the carrying: the band, and the twist at the top, hold them together, until they be got upon the waggon, at least.

In "HAULING," it is customary for boys or others (employed by the farmer) to pick up the scattered beans, by hand, after the waggon.

IX. In the center of the vale, BEAN HALM is thrown into the horse rack, and the offal strewed about the yard, as litter. About Glocester, great quantities of it (as well as some straw) are bought up, at a potash manufactory, and burnt for the ashes!

X. The MARKETS for beans are the market towns of the district; at which they are bought, for *horses* and for *hogs*, (of which they are here a principal article of fatting:) and Bristol; whose factors buy up great quantities, for the inns (beans being throughout this division of the kingdom still used as a provender of horses) and for the Guinea ships, as food for *Negroes*, in their passage from Africa to the West Indies.

XI. The PRODUCE of beans, on a par of years and crops, is about three quarters, an acre. Four quarters—that is, about thirtyeight Winchester bushels, are not a very extraordinary crop: though much of the land which produces them has borne beans, every third year, and some of it, perhaps, every second year, during a succession of ages. Something may be due to management, and much to the nature of this plant;

which appears to flourish, unabatingly, on strong, deep land. The rest may be owing to the natural richness, and peculiar depth, of the vale soils.—Beans strike deep, and probably feed, in some measure at least, beneath the ordinary pasture of plants.

19.

CULTIVATED HERBAGE.

IN A COUNTRY, whose lands lie chiefly in common arable field, or in old grass inclosures,—the CULTIVATION OF GRASSES, either as *temporary* or as *perennial* ley, is, of course, confined within narrow limits; nevertheless, the two species of cultivation require to be noticed, in this place.

I. TEMPORARY LEY. Pasture lands are too abundant, and hay too cheap, to require much temporary ley to be made. In the improved course of the fallow-field land, small pieces are, however, not unfrequently sown with CLOVER (common red

clover) instead of beans; by way of *green herbage*, for farm horses; and sometimes larger pieces; for *seed clover*.

The quantity of CLOVER HERBAGE, which some of the vale lands throw out, is extraordinary. The lighter lands are thought to be "too free for clover!"—running it too much to *balm*; which trails upon the ground, like that of peas! It will not, it is said, answer on this soil, for seed; for if mown, even twice, the third crop will be rotten, before the seed be ripe!

But the stronger lands produce a more upright, clover-like crop;—generally, however, of uncommon luxuriance. It is usually mown, as green herbage, three times, in the course of the summer. If made into hay, the quality is found to be extremely good. If cut in due season, and properly made, it is thought to be equal to meadow hay, as an article of fatting for oxen.

Such is the value of the CLOVER CROP on *fresh lands*,—on lands which are new to it; and such, we may fairly add, is the *natural strength* of the lands of this district. How truly absurd, then, to suffer the common fields to remain in their present unproductive state. Not clover, only, but every

other species of CULTIVATED HERBAGE, adapted to the several soils, would, no doubt, be productive.

In the same unprofitable state lay the lands of the vale of Pickering.* They had borne *grain*, until they would barely pay for the labor of cultivation. The yeomanry starved on their own lands. They were not worth, as arable lands, 10*s*. an acre. But, having been inclosed, and kept in a state of *herbage*, they, many of them, now let for 30 to 40*s*. an acre.

It must be allowed, that some considerable expence attends the inclosure of open lands; and that it is some years, before the herbage arrives at its most profitable state. In the case here instanced, the land lay, several years, nearly in a state of waste.† But it does not follow, that, in these more enlightened days, the same method of leying should be practiced. They might, now, on a certainty, be rendered productive, from the day of inclosure. But of this in the next Section.

In the management of SEED CLOVER, I

* See YORK. ECON. PLAN OF MANAGEMENT.
† See YORK. ECON. CULTIVATED HERBAGE.

have met with nothing worthy of notice; except the practice of thrashing it, in frosty weather: or rather the idea of giving the preference to such weather, for thrashing it in. The advantage is evident, when the idea is known; but it does not seem to have struck universally: I therefore give it a place in this register.

II. PERENNIAL LEYS. The recent attempts at laying down arable land to grass, in this district, have been made, principally, on the lands mentioned, aforegoing, as being broken up from a state of rough pasture, and sown repeatedly with wheat (see page 67.) But these attempts, I believe, have generally been unsuccessful. The soil, reduced to a state of foulness, by repeatedly cropping it on single plowings, had no other cleansing, perhaps, than a barley fallow; and, in this foul state, was probably rendered still fouler, by sowing over it the seeds of weeds, under the name of "hay seeds." No wonder that land laid down to grass, in this manner, should, in a few years, require to be given up again to corn.

HAY SEEDS, however, is an indefinite

term. Seeds collected from known hay, of a well herbaged ground, cut young, shook or thrashed upon a floor, and sifted through fine sieves, to take out the large seeds of weeds, with which all old grass-lands abound, might be eligible enough; provided still purer seeds could not be had. But what is generally thrown upon land, under the denomination of "hay seeds," is a collection of the seeds of the ranker weeds, with few or none of those of the finer grasses.

One of the finest grass grounds, I have seen in the vale, was laid down with hay seeds, about five and twenty years ago; but it was with seeds of the former description; and the management, in every other respect, equally judicious. The land had been in bad hands, and was become extremely foul with couch; it was, therefore, summer fallowed. But the season proving unfavourable, it was deemed, the ensuing spring, not yet sufficiently clean. It had, therefore, a second year's fallow!—By repeated plowings and harrowings, across the ridges, they were pulled down from roofs to waves. The next ensuing spring, it was sown with bar-

ley and hay seeds; the most *spirited* instance of practice, I have met with, in this most important branch of rural economics. And the event proves its eligibility, in a striking manner. Before this two years' fallow, the land let for 10*s*. an acre: foul as it was at the time it was broken up, no crop could grow in it; it was worth nothing, to the occupier for one year. It is now worth from 25 to 30*s*. an acre.

On the other hand, I have had opportunities of observing several instances of lands, which have been laid down with "hay seeds," and which, at present, lie a disgrace to agriculture. This spring, I listed the plants of a piece laid down in this disgraceful manner.

In *May*, the only *grass* was the brome-grass—(oat grass—loggerheads—lob.) *Bromus mollis*,—and of this but a very small quantity. The *weeds* were as follow: *corn horsetail,—broad plantain,—common thistle, groundsel,—crowfoots,—convolvulus,—docks, &c. &c.* Half the surface was actually bare: no appearance of a quarter of a crop; even of weeds. In *September*,—I found it overrun with the *ox-tongue (picris echioides)*

whose seeds were blowing about, to the annoyance of the neighbourhood. And this, I am afraid, may be taken as a specimen of the present method of laying land down to *grass* in the vale of Glocester.

The only reason given, for persevering in this unpardonable practice, is, that no better seeds are to be had; RAYGRASS being "ruinous to the vale lands!"—"Smothering every thing: and impoverishing the soil, until it will grow nothing!"

In the next article, it will appear, by the catalogues there given, that the predominant herbage, of the old grass lands of the vale, is RAYGRASS. But lest the general account, which will there be given of the grasses, should not be thought sufficiently conclusive, I will here copy a series of memoranda, made on the subject, in the autumn of 1783: before I became acquainted with the rooted antipathy, which I have since found to be formed, against raygrass.

"*Hatherley*, 10 *Sept.* 1783. Observing in a small inclosure, which has been lately laid down (or more accurately speaking, is laying itself down) to grass, some green

swardy patches beginning to make their appearance, through a carpet of couch and other foulness, I examined the species, which were thus employed in rendering the land, in despite of bad management, useful to the occupier; and found them to consist, wholly, of raygrass and white clover. This led me to a more minute examination of the adjoining ground, esteemed the best piece of grass land in the neighbourhood, and, from the seed stems which are now remaining in the stale patches, I find the blade grasses to be chiefly raygrass, with some dogstail, and a little softgrass.

"*Sept.* 11. In my stroll this morning, in the center of the vale, I met with an extensive suite of cow grounds (by the side of the Chelt in Boddington) the soil five or six feet deep. The herbage white clover and raygrass: the young shoots of the raygrass as sweet as sugar! much sweeter than any I have before examined. These grounds (late Long's) are, it seems, very good ones for grazing; but are difficult to make cheese from.

"I have no longer a doubt about the herbage of the rich ground, noticed above, consisting *at present* (the middle of Sept.)

in a manner wholly of raygrass and white clover; for, in my walk this evening, I carefully examined several plants of raygrass, which had both seedstems and blades belonging to them; and, on examining the blades with a glass, and comparing them with the turf of this field, I find they are identically the same. In *taste*, however, the different specimens vary considerably; and, *perhaps*, the taste of raygrass might be taken as a criterion of soils; and, *perhaps*, with the assistance of a glass, not only this, but any other grass, may be known, with certainty, by the blade alone.

"*Sept.* 15. Tewkesbury lodge, a charming grassland farm: a bold swell covered with a rich warm soil, occupied by a luxuriant herbage; chiefly raygrass! Some white clover; and some few of the finer blade grasses. "All green:" not a foot of plowed land!

"Below Apperley,—an extensive whole year's common, stocked with horses, young cattle, sheep, and geese: the site a dead level, subject to be overflowed; the soil, a redish loam; the herbage, raygrass—(saccharine in a superior degree—literally as sweet as sugar!)—with some white clover,

and from what I can judge by its growth, some marsh bent. It is eaten down so level and so bare, that the geese, one would imagine, could scarcely get a mouthful; yet the young cattle are as sleek as moles: it is esteemed, I understand, without exception, the best piece of land in the country."

In proof, however, of raygrass being wholly unfit for the vale lands, I have been shown a piece which was laid down with "ryegrass:" and, certainly, a more shameful piece of ley was never shown. Perceiving, however, from the rubbish upon it, that the seeds of rubbish, not those of raygrass, must have been sown, I made inquiry into the complexion of the seed, and found that it was bromegrass—"lob"—"loggerheads"—fetched from the hills, where that grass abounds, which had "smothered every thing" (even the raygrass which might have been sown among it) except a few of the ranker weeds. And similar evidences of the ruinous nature of "ryegrass" I have met with, in other districts.

The bromegrass and other weeds, which have been sown, hitherto, under the name of ryegrass, are certainly improper for the

vale soils; and it is possible that even the *variety* of *real* raygrass, which is cultivated, may not be eligible. In Yorkshire, I found a variety (in a garden) which had evidently a *couchy* habit.

But how easy to collect the NATIVE SPECIES, which abounds on the old grass-lands; and thus raise a new variety, adapted, on a certainty, to the vale land. The difficulty of doing it would vanish, the moment it were set about: it only wants a little exertion: a small share of indolence to be shook off.

If *real* raygrass has ever been tried, alone, and without success, it has probably arisen from too great a quantity having been sown. Be it raygrass or rubbish, I understand, seldom less than a sackful, an acre, is thrown on: whereas ONE GALLON, an acre, of CLEAN-WINNOWED REAL RAY-GRASS-SEED, is abundantly sufficient, on such soil as the vale in general is covered with.

Or, perhaps, the miscarriages have arisen, in the strength of the vale lands; in their being naturally affected by raygrass, and in the want of these valuable qualities being duly tempered by proper management.

The *forcing* quality of the first spring of grass seems to be, here, well understood. "No matter how short the grass, at this time of the year, so the cattle can get hold of it;—they are sure to thrive amain."

The reason is obvious: there is not, at that season, a blade of any other grass, than ray grass: no alloy, to lower its value: it has, then, full scope; and, in this case, the Glocester-vale graziers experience its use, as sensibly as the Norfolk farmers: these, however, are grateful; because they know the effect proceeds from raygrass: but those, unaware of the gratitude they owe, stand foremost to revile its character.

In Norfolk, and on the Cotswold hills, the lands are comparatively weak, and have, perhaps, long been used to raygrass: the graziers, there, find no difficulty in keeping it down in the spring. Here, on the contrary, the land is rich, is peculiarly affected by raygrass, has much of it lain, for ages, in a state of aration, and is of course peculiarly prone to the grasses. The graziers, it is highly probable, are not aware of the stock it will carry, for a few weeks in the spring; twice, perhaps three times, as much as their old grass grounds.

Some men, sensible of the mischievousness of foul "*bayseeds*," and believing in the diabolical influence of *raygrass*, have laid down lands with WHITE CLOVER, alone; or with a mixture of white clover and TREFOIL; without any blade grass whatever.

This is certainly preferable to fouling the turf with weeds; but it is returning, one step, to the obsolete custom of letting land lay down, in its own way. There is a certain loss of nutritious herbage, in the outset;—and the weeds, already in the soil, will of course occupy, in some degree, the vacancies which would be better filled by blade grasses.

That land may be leyed, without blade grasses, is certainly true: I have long ago practised this method of leying. (See MINUTES OF AGRICULTURE, date 20 May, 1775.) But it was before I had seen the extraordinary effects of raygrass, when properly managed, in the established practice of Norfolk. See NORFOLK. Sect: CULTIVATED HERBAGE.

It is equally true, that most excellent grass land may be obtained, without sowing any seed whatever. (See YORKSHIRE. Sect:

CULTIVATED HERBAGE.) The impropriety of the practice is, however, evident. And sowing one class, only, appears to be no more than a middle way between that and good management.

Who would not wish to see the herbage of his leys, the first year, resemble the better herbage of his old grasslands, without their weeds?

It is evident, that the prevailing herbage, of the best grass grounds of this district, is composed of raygrass and white clover. In spring and autumn, the surface is in a manner wholly occupied by them. All that the art of leying wants, to make it perfect, is a SUMMER BLADE GRASS, to supply the place of the natural summer grasses of the old sward.

But if we are unable to reach perfection, there is no reason, why we should not approach it, as nearly as we can. A nutritious bite, in spring and autumn, is certainly better than a want of it, at these times. By sowing a *small quantity* of raygrass, and keeping this *closely pastured in the spring*,—the summer grasses, natural to the given soil, have little more impediment to their

rising, than they would have, if no raygrass were sown.

If, instead of a *gallon of clean raygrass*, a *sackful of rubbish* be sown, or if even a gallon of clean raygrass be sown, and the herbage be suffered to run away, wild, in the spring, and get possession of the surface, its evil effects cannot be said to be owing to the nature of the plant, but to a want of judgment in the growers of it. Under proper management, it can do no harm.

I have been induced to say more on this subject, and to express my ideas in stronger language, as some of the leading men of this district are *afraid* to cultivate raygrass; and one, more particularly, whose management is deservedly looked up to, is an open enemy to it. All I have to say, farther, on the subject is, that, *I verily believe*, I have no undue affection for any particular species of grass. My leading principle of conduct, throughout the irksome undertaking I have engaged in, is to stand with all my strength against FALSE-GROUNDED PARTIALITIES: whether I perceive them in myself, or observe them in others.

The subject before us is of the first importance, in rural economy; converting worn-out arable lands to a state of profitable sward, is one of the most important operations in husbandry; and is, perhaps, of all the other operations in it, the least understood. The district, under survey, contains twenty thousand acres of land, which ought to undergo this change, with all convenient speed. And, whenever it takes place, ten to fifteen thousand pounds a year, for some years afterward, will depend on whether it be judiciously, or injudiciously conducted.

20.

NATURAL HERBAGE.

THE OLD GRASS LANDS of this district fall mostly within the species LOWLAND GRASS, or waterformed lands, and MIDDLE-LAND GRASS, or upper grounds. The UPLAND, it contains, is too inconsiderable, to claim particular notice; consisting, merely, of the marginal slopes; and the sides and contracted summits of the hillocks, which are scattered on its area.

I. WATER FORMED LANDS. These consist mostly of COMMON MOWING GROUNDS, —provincially "meadows:" * in part, of COMMON PASTURE GROUNDS,—provincially "hams."† Some inclosed property likewise

* It is observable that the Glocestershire COMMON MEADOWS do not lie in long *swaths*, as those of the Yorkshire INGS, but in square *plots*, marked by boundary stones. The HAY is private property, but the AFTERGRASS is generally common to the township; either without stint; or is stinted by the "yard lands" of the common fields.

† HAMS are mostly stinted pastures: one, near Glocester, is, however, an exception.

comes within this division of grass lands: which, it is observable, are uniformly sound and fully swarded; their levelled surface rising in some places twelve or fifteen feet above the level of dead water. No *fens*, or *watery marshes*, mix in the lowlands of the vale of Glocester.

By NATURAL SITUATION, however, these lands are subject to be overflowed; either by the Severn, or by the rivulets which cross the vale; and owe, no doubt, their present elevation and levelness of surface, to the sediment of floods.

In the immediate neighbourhood of Glocester, there are not less than a thousand acres of this description of grass land; mostly of a rich productive quality. The ISLE OF ALNEY (a holm, or river island, formed by a divarication of the Severn) consists chiefly, or wholly of it. It is not, however, peculiar to the Severn; but accompanies, on a more contracted scale, the Chelt and other brooks and rivulets, into the area of the vale.

The SOIL, of these low grounds, is invariably deep: and of the same quality and contexture, at different depths. That of the isle of Alney, and the other meadows near

Glocester, is about six feet deep; a uniform mass of somewhat redish loam.

It is observable, however, that the quality of this loam varies, in different situations. At the upper point of the island, it inclines to a coarse sand; while toward the lower extremity, it is fine almost as silt. It is also observable, that the surface lies higher, in that, than in this situation. But these circumstances are strictly agreeable to the general effects of floods: that is, of foul water in a current state.

Another observable circumstance, relative to the soil of these meadows, is, that it is uniformly CALCAREOUS, in the degree of about five grains to a hundred; except near the surface, *in the immediate sphere of vegetation:* in which it discovers no signs of calcareosity! A circumstance that appears, to me, extremely interesting.

Near Glocester, this bed of loam is used as BRICKEARTH: and, without any admixture, affords bricks of an excellent quality. A new county jail, on the Howardian principle of separate cells, and on a very extensive scale, is now building, with bricks made from this earth; one hundred grains of which, in the situation, from which the

earth of these bricks is taken, affords, by analysis, five grains of calcareous earth, twelve grains of sand, and eightythree grains of silt.

Another observable circumstance relative to this soil is, that it resembles in COLOR, the waters of the Severn, in the time of floods. The waters of rivers, in general, are in the time of flood (during freshes or land floods, as they are usually called) of a light brown, or stone color. But those of the Severn, in their passage through this part of Glocestershire, are mostly a light red, or what is generally understood by a cinnamon color; owing, most probably, to particles of the red soils, west of the Severn, being suspended among those washed from the vales of Glocester and Evesham: the color varying as the rain, which caused the swell, fell more or less, on the redland country.

The banks of the Avon, and the Chelt, are free from this redness; as are the rising grounds on either side of the Severn meadows, in this neighbourhood: facts which, to my mind, demonstrate, that these meadows are a creation of the floods of the Severn, since the rising grounds received their

present form: consequently, that the extensive flat, which they now occupy, was heretofore (and perhaps, not many centuries ago) a WASH; over which the tide flowed; in the manner in which it still flows, over a yet more extensive tract of surface, in the neighbourhood of Newnham. A tract of surface, which still remains in an unprofitable state; but which, may we not venture to suggest, might possibly be reclaimed.

The nature of the SUBSOIL, likewise favors the above position. Beneath the mass of loam, which I have termed the soil, lies a stratum of earth, of a somewhat lighter color, but evidently partaking of the nature of the soil, which rests upon it; beneath this, a yet lighter-colored silt, exactly resembling the mud, which is still brought up from the sea, or from banks formed in the lower parts of the Severn, and left in quantity, by every tide, wherever it can find a lodgement; and beneath this bed of mud (mixed in some places with a coarser sandy earth) lies, in red and white strata, the *natural subsoil of the country*,—the ORIGINAL SURFACE;—as left by nature; or by the convulsions of nature which ap-

pear, evidently, to have thrown the earth's surface into its present form.

This original surface would be covered, by the tides, with silt from the sea, long before the lands, lying above it, were brought into an ARABLE STATE, to furnish the river floods with materials, to give much addition to the covering; and yet a longer time, before ART assisted (as in all human probability it has) in raising the surface to its present height.*

* By observations, during a flood, while the general level was covered, a part near its center (the town ham, &c.) appeared some two feet above the water. This part, in much probability, was the original ISLE OF ALNEY: an ancient name, which the present holm, bearing that appellation, was the less likely to obtain; as tradition relates, that the minor division of the Severn, which now winds by the kays of Glocester, was originally a cut, made for the conveniency of navigation: a circumstance that is corroborated by the plan of an ancient fortification, which appears to have extended, considerably, beyond the present river; and whose foundation, probably, is now buried, among the accumulation of soil, some feet below the present surface.

These observations, I acknowledge, are not essential in a register of rural economy: nevertheless it is interesting to observe the changes which the face of nature, and with it rural affairs, have undergone: not in this instance, only; but in various others, of a similar nature, in every quarter of the island.

The HERBAGE, with which the floods, time, and other circumstances have furnished these lowlands, varies with the manner in which they have been occupied.

The herbage of the "hams"—or commons is, (as has already been intimated) in the spring, and in autumn more particularly, one continuous mat of RAYGRASS and WHITE CLOVER, with a portion of the CRESTED DOGSTAIL: the blade grasses being of a superior quality; saccharine in the first degree: particularly those of the commons that are fed with sheep; which keeping down the weeds, the finer grasses are in full possession. But the superior quality and productiveness of these pasture grounds are not matters of surprise:—for, beside the annual tribute of the floods, they have had the whole of their own produce regularly returned to them: while the mowing grounds have been annually robbed of a principal part of their produce; without having, perhaps, in general, had any return whatever made.

The herbage of the "MEADOWS" appears in the following list; the individuals of which were collected, in the Isle of Alney,

and other divisions of the extensive flat, which has been more particularly noticed. They are arranged agreeably to their degrees of frequency, in those meadows; or, as nearly so, as the intention of the arrangement requires.

LINNEAN.	ENGLISH.
Lolium perenne,	raygrass.
Trifolium repens,	creeping trefoil.*
Trifolium procumbens,	procumbent trefoil.
Hordeum murinum,	common barleygrass.
Phleum nodosum,	bulbous catstail.
Cynosurus cristatus,	crested dogstail.
Carices,	sedges.
Anthoxanthum odoratum,	vernal.
Alopecurus pratensis,	meadow foxtail.
Festuca fluitans,	floating fescue.
Festuca elatior,	tall fescue.
Agrostis alba,	creeping bentgrass.
Agrostis capillaris,	fine bentgrass.
Alopecurus geniculatus,	marsh foxtail.
Holcus lanatus,	meadow softgrass.

* CREEPING TREFOIL; or *white clover.*

Bromus mollis,—soft bromegrass.
Bromus —smooth bromegrass.
Avena flavescens,—yellow oatgrass.
Poa trivialis,—common poe.
Poa pratensis,—meadow poe.
Poa annua,—dwarf poe.
Sanguisorba officinalis,—meadow burnet.
Lathyrus pratensis,—meadow vetchling.
Trifolium pratense,—meadow trefoil.*
Lotus corniculatus,—birdsfoot trefoil.
Ranunculus repens,—creeping crowfoot.†
Chrysanthemum Leucanthemum,——oxeye daisey.
Centaurea nigra,—common knobweed.
Achillea Millefolium,—milfoil.
Rumex Acetosa,—sorrel.
Rumex crispus,—curled dock.

* MEADOW TREFOIL,—or *red clover.*

† CREEPING CROWFOOT;—provincially "creeping crazy"——is here esteemed as a valuable species of herbage, while the common and the bulbous species, of this genus of plants, are considered as extremely pernicious; especially among hay. This is a distinction, which does the attention of the vale farmers great credit. The fact appears to be, on examination, that the two latter are extremely acrid, and probably have a caustic effect on the mouths of the cattle, which eat it: while the first is perfectly mild and agreeable to the palate. A circumstance, that is not generally understood.

Rumex obtusifolius,—broadleaved dock.
Leontodon Taraxacum,—common dandelion.*
Hypochæris radicata,—longrooted hawkweed.
Galium verum,—yellow bedstraw.
Ranunculus Ficaria,—pilewort.
Bellis perennis,—common daisey.
Dactylis glomerata,—orchardgrass.
Briza media,—tremblingrass.
Aira cæspitosa,—hassock airgrass.
Avena elatior,—tall oatgrass.
Festuca duriuscula,—hard fescue.
Juncus articulatus,—jointed rush.
Scirpus cæspitosus ?—fluted clubrush ?
Peucedanum Silaus,—meadow sassafras.
Oenanthe pimpinelloides ?—meadow dropwort ?
Heracleum Sphondylium,—cowparsnep.
Carduus palustris,—marsh thistle.
Serratula arvensis,—common thistle.
Urtica dioica,—common nettle.
Vicia cracca,—bluetufted vetch.

* The Glocestershire dairymen have also observed, that cows have an aversion to the "bitter grasses"—(the DANDELION and HAWKWEED tribes) but that sheep are particularly partial to them; eating even their "blows."

Phalaris arundinacea,—reed canary grass.
Cardamine pratensis, common ladysmock.
Senecio aquaticus,—marsh ragwort.
Spiræa Ulmaria,—meadowsweet.
Lychnis Flos-cuculi,—meadow campion.
Ranunculus acris,—common crowfoot.
Ranunculus bulbosus,—bulbous crowfoot.
Pastinaca sativa,—wild parsnep.
Achillea Ptarmica,—goosetongue.
Potentilla Anserina,—silverweed.
Potentilla reptans,—creeping cinquefoil.
Cerastium vulgatum,—common mousear.
Galium palustre,—marsh bedstraw.
Prunella vulgaris,—selfheal.
Ajuga reptans,—common bugle.
Myosotis scorpioides,—scorpion mousear.
Plantago media,—middle plantain.
Plantago lanceolata,—narrow plantain.
Rhinanthus Crista-galli,—yellow rattle.
Colchicum autumnale,—autumnal crocus.
Allium vineale,—crow garlic.
Tragopogon pratense,—goatsbeard.
Thalictrum flavum,—meadow rue.
Tanacetum vulgare,—common tansey.*
Cerastium aquaticum,—marsh mousear.

* TANSEY. A very common plant, in this district: particularly on the banks of the Severn.

Galium Mollugo,—tall bedstraw.
Antirrhinum Linaria,—common snapdragon.
Geranium pratense,—crowfoot cranesbill.
Valeriana dioica,—marsh valerian.
Orchis maculata,—spotted orchis.
Polygonum Persicaria,—common persicaria.
Lythrum Salicaria,—spiked willowherb.
Symphytum officinale,—common comfrey.
Ranunculus Flamula, common spearwort.
Caltha palustris,—marsh marigold.
Mentha hirsuta,—velvet mint.
Sisymbrium sylvestre,—water rocket.
Sisymbrium amphibium,—water radish.
Sparganium erectum,—common burflag.
Poa aquatica,—water poe.

The PRODUCE of these meadows varies: near Glocester they are occasionally manured, with ashes and sweepings of different kinds. The par produce, in a middling year, is, I understand, about a ton and a half, an acre; not unfrequently two tons. The hay is of a fine quality.

II. UPPER GRASSLANDS,——or "GROUNDS." The principal part of the grass lands of the district belongs to this

class. The MEADOWS and HAMS, though extensive, are not equal in quantity of surface, to the "grounds:" of which some of the inclosed townships principally consist; and which ought, indisputably, to form the principal part of every township, within the district: the area of the lower vale is, in a manner, wholly occupied, by this species of grass land.

The SOIL is the same as that of the arable lands. Almost every acre of it having, heretofore been under the plow: lying in ridge and furrow, like the lands of the common fields. In the parish of Churchdown, there are grass lands which lie in high sharp ridges, with sides nearly as steep as those of a modern roof. In general, however, they appear to have been somewhat lowered, previous to their being laid down, or suffered to lie down, to grass. Toward Glocester, the lands in general are narrower, and some of them nearly flat.

On examining the soil of a ground, which is deservedly esteemed the best piece of land in the neighbourhood it lies in (Down Hatherley); and which, though a rising ground, bears no vestige of the plow;—I found it as follows:—The first six inches, a

strong loam (a mixture of clay and sand) free from calcareous matter:—from six to nine inches, a dark brown clay, very weakly calcareous:—at twelve inches, a similar soil, but somewhat more strongly calcareous:—from fifteen to eighteen, a stronger bluish clay, still more strongly calcareous: a soil, or rather a subsoil, which probably runs to a considerable depth.

The first six inches I found thickly interwoven with fibres; which lessened in number, as the depth increased; but, even at eighteen inches, the subsoil appeared to be full of them. Hence appears the value of a rich subsoil to grass land. This piece has never been plowed; because, perhaps, it never required plowing; its sward never failed it; continuing in full vigour, through successive generations. It is observable, however, that the ground under notice does not shoot early in the spring; but its sap once in motion, its growth is uncommonly rapid.

The HERBAGE of the grounds varies, much, with the nature of the soil; or, perhaps, more accurately speaking, with the quality of the SUBSOIL. The colder clayey swells (some of which are shamefully neg-

lected) naturally run to an almost worthless herbage: the *wood fescue*, the *coltsfoot*, the *silverweed*, the *fleabane*, the *meadow scabious*, and the *sedges*, are too frequently suffered to occupy their surfaces: while the boggy tumours, which rise at the feet of the hills, and bulge out by the sides of rivulets, and the swampy bottoms, which the rivulets too frequently are obliged to ooze through,—are nurseries of the whole palustrean tribe.

The herbage of the grounds, in general, is however, of a superior quality. The PASTURES, in spring and autumn, are, (as has been mentioned) covered with carpets, thickly woven, with a few of the finest grasses. In summer, however, the MOWING GROUNDS display a most ample variety. The individuals, which form it, are arranged in the following list, agreeably to their degrees of prevalency; or as nearly so, as the intention of the arrangement requires.

LINNEAN.	ENGLISH.
Lolium perenne,	raygrass.
Trifolium repens,	creeping trefoil.
Cynosurus cristatus,	crested dogstail.

Trifolium pratense,—meadow trefoil.
Poa trivialis,—common poe.
Trifolium procumbens,—procumbent trefoil.
Lathyrus pratensis,—meadow vetchling.
Lotus corniculatus,—birdsfoot trefoil.
Bromus mollis,—soft bromegrass.
Bromus ,—smooth bromegrass.
Hordeum murinum,—common barley-grass.
Phleum nodosum,—bulbous catstail.
Avena elatior,—tall oatgrass.
Anthoxanthum odoratum,—vernal.
Agrostis alba,—creeping bentgrass.
Agrostis capillaris,—fine bentgrass.
Poa annua,—dwarf poe.
Festuca sylvatica,—wood fescue.*
Ranunculus repens,—creeping crowfoot.
Ranunculus bulbosus,—bulbous crowfoot‡
Ranunculus acris,—common crowfoot.
Achillea Millefolium,—common milfoil.

* WOOD FESCUE. Very common on the *cold swells*; and every where on *ant-hills*: an interesting circumstance.

‡ The BULBOUS CROWFOOT is singularly prevalent, in this district. In the middle of May, some of the grounds, near Glocester, were hid under its flowers. The *leaves* of this species are more acrid, even, than those of the common sort.

Centaurea nigra,—common knobweed.
Heracleum Sphondylium,—cow parsnep.
Pastinaca sativa,—wild parsnep.
Serratula arvensis,—common thistle.
Rhinanthus Crista-galli,—yellow rattle.*
Euphrasia Odontites,—red eyebright.
Leontodon hispidum,—rough dandelion.
Leontodon Taraxacum,—common dandelion.
Hypochæris radicata,—long rooted hawkweed.
Galium verum,—yellow bedstraw.
Potentilla reptans,—creeping cinquefoil.
Plantago media,—middle plantain.
Plantago lanceolata,—narrow plantain.
Ranunculus Ficaria,—pilewort.
Bellis perennis,—common daisey.
Dactylis glomerata,—orchardgrass.
Holcus lanatus,—meadow softgrass.
Briza media.—common tremblingrass.
Alopecurus pratensis,—meadow foxtail.
Avena flavescens,—yellow oatgrass.
Poa pratensis,—meadow poe.
Festuca elatior,—tall fescue.
Aira cæspetosa,—hassock airgrass.

* YELLOW RATTLE. For observations on this plant see forward.

Alopecurus geniculatus,—marsh foxtail.
Juncus articulatus,—jointed rush.
Chrysanthemum Leucanth:—oxeye daisey.
Peucedanum Silaus,—meadow sassafras.
Rumex crispus,—curled dock.
Rumex Acetosa,—sorrel.
Rumex obtusifolius,—broadleaved dock.
Carduus lanceolatus,—spear thistle.
Urtica dioica,—common nettle.
Cerastium vulgatum,—common mousear.
Stellaria graminea,—meadow starflower.
Plantago major,—broad plantain.
Prunella vulgaris,—selfheal.
Primula veris,—cowslip.
Viola birta,—hairy violet.
Convolvulus arvensis,—corn convolvulus.
Veronica Chamædrys,—germander speedwell.
Veronica serpyllifolia,——thymeleaved speedwell.
Juncus campestris,—grass rush.
Festuca duriuscula,—hard fescue.
Avena pubescens,—rough oatgrass.
Trifolium fragiferum,——strawberry trefoil.
Vicia cracca,—bluetufted vetch.
Orchis Morio,—fool's orchis.
Tragopogon pratense,—goatsbeard.

Daucus Carota,—wild carrot.
Agrimonia Eupatoria,—agrimony.
Artemisia vulgaris,—mugwort.
Chærophyllum sylvestre,—orchardweed.
Galium Mollugo,—tall bedstraw.
Geranium pratense,—crowfoot cranesbill.
Geranium dissectum,—jagged cranesbill.
Vicia sativa,—meadow vetch.
Vicia sepium,—bush vetch.
Lathyrus Nissolia,—grassleaved vetchling.
Primula vulgaris,—primrose.

The above constitute the herbage of the sounder, better soils: the following are suffered to inhabit, and, in some instances, to occupy exclusively, the colder less fertile swells; or the bogs and swamps that are suffered to remain, in more genial situations.

Festuca sylvatica,—wood fescue.
Ononis arvensis spinosa,—restharrow.
Tussilago Farfara,—coltsfoot.
Potentilla Anserina,—silverweed.
Hieracium Pilosella,—mousear hawkweed.
Carices,—sedges.
Melica cærulea,—purple melicgrass.

Cineraria palustris,—marsh fleabane.
Scabiosa Succisa,—meadow scabious.
Carduus palustris,—marsh thistle.
Spiræa Ulmaria,—meadowsweet.
Stachys palustris,—clownsallheal.
Juncus inflexus,—wire rush.
Juncus effusus,—common rush.
Achillea Ptarmica,—goosetongue.
Ajuga reptans,—common bugle.
Orchis maculata,—spotted orchis.
Orchis latifolia,—marsh orchis.
Myosotis scorpioides,—scorpion mousear.
Mentha hirsuta,—velvet mint.
Polygonum Persicaria,—common persicaria.
Polygonum amphibium,—amphibious persicaria.
Caltha palustris,—marsh marigold.
Veronica Beccabunga,—brooklime.
Sisymbrium Nasturtium,—water cress.

The PRODUCE of these upper grounds varies with the quality of their respective soils. An acre and a half to two acres, of the better grounds, are allowed as *pasturage* for a cow: there are grounds which will nearly carry a cow, an acre. The produce of *hay* is from one to two tons, an acre.

III. The GENERAL MANAGEMENT of GRASS LANDS, as practised in this district, requires an outline of description, similar to that which was found requisite, in describing the same important branch of husbandry, as practised in the vale of Pickering. See YORKSHIRE.

The GENERAL MANAGEMENT comprises

1. Draining. 3. Dressing. 5. Manuring.
2. Clearing. 4. Weeding. 6. Watering.

1. DRAINING. Many of the grounds are shamefully liable to surface water. The subject of shores, ditches, and surface drains, has been repeatedly touched on, in the course of this volume: it might here be reiterated. A vale without shores, ditches, and SURFACE DRAINS, is a disgrace to its owners and occupiers.

Besides a deficiency of surface drains, much UNDERDRAINING is wanted: especially in the boggy tumours, which have been noticed. The *flats* of cold blue clay, some few of which there are, would be found more difficult to be improved, by underdraining: the cause of their infertility is owing, probably, to the retentive nature of the soil and immediate subsoil, rather than to internal waters rising toward the sur-

face. *That* gives a general coldness, which is difficult to remove: but the effect of *these* is partial; being caused by collected or communicating waters, too small in quantity, or lying too low, to force themselves out at the surface, as *natural springs*; but are ready to escape from their confinement, as soon as an *artificial vent* is made for them.*

The colder *swells* might probably be assisted, very much, *by throwing the lands across the slopes*. See YORK: ECON: on this subject.

2. CLEARING. The grass lands of this district, considering their age, may be said to be well kept: owing perhaps to their having, in general, been occasionally mown for hay, or swept in a state of pasturage. Bushes and anthills are less common, here, than in many other grassland districts. Some grounds are in high preservation; not a bush or an anthill left, to disfigure their polished surfaces. There are others, however, in the opposite extreme of neglect. Their surfaces hid, and in a manner occupied, by restharrow and the anthill

* In the VALE OF EVESHAM, I am informed, much underdraining has been done, and with good success.

fescue: a stage of distemper which nothing but the plow can cure.

Some of these lands, it has been said, have been given up to tillage. The rest have a right to undergo the same salutary operation. It is voluntary waste, in their owners, to let them lie in their present state; and that, too, without being repaid in any counter gratification. An oak wood may be an object of *pride* to its owner; and grows venerable as it grows old; but a rough grazing ground is an eye-sore; a scab which disfigures the face of a country; and grows offensive with age.

Their motive, however, for suffering these grounds to remain under circumstances so disgraceful, may be more pardonable than it appears to be at first sight. It may proceed from the evident ill usage of those which have been permitted to be broken up. But this only lessens, and does not wholly wipe away, the *crime* of keeping them in an unproductive state. If they have not been properly laid down again to grass, the *neglect* is their own. See YORKSHIRE, Art. PERENNIAL LEYS.

3 DRESSING. Molehills and dung are here spread with common hayforks; used

with the back downward; swinging them right and left: tolerable implements for the purpose. Sometimes a bush harrow is drawn over the surface of the mowing grounds; which are sometimes rolled; especially those which have been foddered on, and trodden up by the cattle. No molding sledge, nor any thing adequate to it, is here in use; though it would obviously be useful. The sledge, which is now in common use, for carrying hedging thorns, &c. might, with a little alteration, be made to answer both purposes. See YORKSHIRE, Art: MOLDING SLEDGE.

One particular, in the practice of dressing meadows, here, is noticeable. If a mowing ground be fed late in the spring, so as to render it doubtful whether, if the dung be spread, it would be washed down below the cut of the sithe before mowing time, it is picked off the ground, and carried to the dunghill.

4. WEEDING GRASS LANDS. With respect to the *eradication* of weeds, I have met with nothing praise-worthy, in this district. Some of the meadows are shamefully overrun with *docks:* while the hams, being unappropriated, are too frequently occupied

by *thistles*, which I have seen growing in beds of an acre each.

But with respect to the *topping* of weeds, in the inclosed pasture grounds, the vale merits singular praise. It is the only district, in which I have observed this piece of good husbandry, in any thing like common practice. Here, not only *weeds* of pasture grounds are topped, generally once (about midsummer) and sometimes twice; but the *coarse herbage* of the furrows is mown, and the *broken grass* of the ridges swept off, for hay. Several loads of good fodder will sometimes be got, from a ground, by this practice. A practice which ought to be adopted in every district. Besides the loads of fodder which are obtained,—several acres of autumnal pasturage are probably gained:—or in other words, a fresh ground is added to the farm—by the operation. See NORFOLK, Min. 7. Also YORKSHIRE, Art: PASTURES.

5. MANURING. The manuring of grass lands will, I believe, scarcely admit of being called a practice of *this* vale. The lowlands, in general, are consigned to the benevolence of the floods: cow grounds, which are every year pastured, require no manure;

and mowing grounds are seldom, I believe, afforded any. The arable lands, alone, require more than the district produces. However, by bottoming the courts with mold, to absorb and retain that which now runs waste out of them, a considerable quantity of grassland manure might annually be obtained, without robbing the arable lands of a single load of their present quantity of dung. See YORKSHIRE, Article RAISING MANURE.

This deprivation of manure may account, in some measure, for the unproductiveness, compared with the intrinsic quality, of some of the vale lands; which may not, perhaps, have received any other melioration than the *teathe* of pasturing cattle, and perhaps some good effect from being foddered on, in the winter, since the time they were converted into grass lands.

6. WATERING. The watering of grass lands, on the modern principle of float-and-drain, is not the practice of either of the vales of Glocestershire. I have not seen even a single instance, in either of them; though there are many situations which would admit of its introduction. This circumstance is the more remarkable, as in North Wilt-

shire, a neighbouring district, it is in common practice. In the more western counties it is, I understand, still more prevalent.

This is another instance of the stagnant state of the husbandry of these vales. It is highly probable, that, at the time of the dissolution of the monasteries, they stood pre-eminent in English husbandry. But, through an evident neglect of MODERN IMPROVEMENTS, they are now left, in many respects, beneath the rest of the kingdom. This appears to me a circumstance well entitled to the attention of the landed interest of these vales.

IV. The OBJECTS of the grassland husbandry are *hay* and *pasturage*.

It seems to be well understood, here, that grounds ought to be mown and pastured, alternately; and, in some instances, the principle may be attended to in practice. But it is generally convenient to have the "cow grounds" near the milking yard. The distant grounds are, of course, more convenient as "mowing grounds:" they are, however, "grazed" occasionally, by fatting cattle.

It is observed, here, and is observable almost every where, that if grass land be mown, every year, it is liable to be overrun

with the YELLOW RATTLE (*Rhinanthus*) which, being a biennial plant that sheds its seed early in the spring, is increased by mowing. But pasturing the ground, even one year, is found to check it. The reason is obvious: the major part of the plants, being eaten off with the other herbage, are prevented from seeding. Pasturing two years, successively, and carefully sweeping off the stale herbage, when this plant appears in full blow, would go near to extirpation.

V. MOWING GROUNDS, and their management:——divisible into

1. Spring management.
2. Hay harvest.
3. Aftergrass.

1. SPRING MANAGEMENT of MOWING GROUNDS. In this district, where grass lands vary much as to their times of vegetating in the spring, the time of shutting up the *inclosed grounds*, for hay, provincially "hain-"ing" them, is regulated by the nature of the land. Cold backward lands are seldom eaten in the spring: while the free-growing more early grounds are pastured till the beginning of May. This distinction is a masterstroke of management, which I have

not observed, in the ordinary practice of any other district.

The time of shutting up *common meadows* is guided by custom. Some are shut up at Candlemas, others at Ladyday, others at Mayday. A very extensive meadow, immediately below the town of Glocester, is, by ANCIENT PRIVILEGE, pastured, even with sheep, until the middle of May. The consequence of this custom is, that in case the spring set in with drought, the crop of hay is in a manner lost. This year (1788) the wormcasts were not hid, until the latter end of June!

But injudicious as that RELICK OF ANCIENT CUSTOMS may now be, viewed in a general light, another, in its tendency abundantly more mischievous, is preserved, in a meadow of some hundred acres, in the same neighbourhood. Over this valuable tract of mowing ground, two horses range at large, *while the crop is growing!!!* with, of course, the privilege of doing all the mischief to which the wantonness of horses, turned loose in so large a pasture, can stimulate. The reader, I am afraid, will scarcely give me credit for what I am relating. No other authority than my own

sight could, I confess, have induced me to believe, that an evil so great—an absurdity so glaring—could, in these enlightened and liberalized times, have existed in this country. Tradition says, that stallions, alone, were formerly entitled to this diabolical privilege; but, at present, any two horses are admitted to it. Whatever may have been its origin, it would be doing injustice to the present laws of England, to suppose them capable of giving countenance to any act whose main tendency is the wanton destruction of the produce of the soil. No man, now, has a *privilege* of doing the community wanton mischief. The full value of the pasturage is, no doubt, the rightful property of the *claimant.*

2. HAYING. The state of ripeness—*the age*—at which a crop of grass ought to be cut—is a subject of no small importance. In the ordinary practice of this district, as in that of every other district I have observed in, grass is suffered to stand, much too long, before it be mown for hay. This evil practice may have originated in common meadows, whose aftergrass is unstinted, (or frequently belongs to separate owners:) a species of mowing ground,

which, formerly, was common to this and most other countries.

There are, however, in this district, men who are well aware of the advantages of early cutting;—who know, from experience in *grazing*, the value of the aftergrass of early mown grounds; as well as the fatting quality of hay, which has been mown in the fullness of sap. Hence we find, in this country, more advocates for early cutting, than in most others, where the fatting of cattle, on hay, is not a practice. There is, in an ordinary season, much grass cut, in different parts of the district, *at six or seven weeks old*.

In *mowing*, it is observable, the Glocestershire laborers cut remarkably level. In some cases, not a stroke, or scarcely a swath-balk, is discoverable. This is chiefly owing to the narrowness of the swath-width, and the shortness of the sithe, in use in this country. The mowers of Glocestershire, and those of Yorkshire, work in opposite extremes of the art. The Yorkshireman drives a width of nine or ten feet before him, the Glocestershireman of six or seven feet only. I have measured across a series of swaths which, one with another, have not

measured six feet wide. The one makes the operation unnecessarily laborious, and causes, almost unavoidably, a waste of herbage,—the other renders it unnecessarily tedious. A good workman may take *half a rod* (eight feet and a quarter) with sufficient ease to himself, and at the same time leave his work sufficiently level. It is prudent, however, on the part of his employer, to see that he keeps within due bounds; and, more especially, that he does not exceed the *medium width*.

The *making* of hay is an inexhaustible subject. Every district, if we descend to minutiæ, has its shades of difference. The practice of this district resembles, very much, the practices of Yorkshire; not only in the first stages, but in the remarkable expedient of forming the hay into stacklets (here called "windcocks") previous to its being put into stack. But, here, the practice is carried a stage farther; the hay being sometimes made into small stacks, of several loads each, in the stack yard; and, while yet perhaps in a degree of heat almost suffocating to work among, is made over again into one large stack.

The same reasons are given for this prac-

tice, here, as in Yorkshire: namely that of being able to make it fuller of sap, in this way, than it can be, by the ordinary method. There seems, however, to be an additional motive to it, in this country: namely, that of being enabled, by this means, to make it into *very large stacks*— of fifty, or perhaps a hundred loads each. Such stacks are fashionable. They are spoken of with pride; and it seems probable, that the *pride of great ricks* has some share, at least, in the practice of giving hay a double heat.

Be this, however, as it may, it is a fact, well ascertained, that the hay of these vales is of a superior quality. It is found to bring on *fatting cattle* nearly as fast as the green herbage from which it is made; passing thro them with the same appearances. And the produce of *butter* from hay, in this district, is extraordinary. But whether this superior quality be owing, in part, to the method of making it, or wholly to the soil and the herbage from which it is made, is by no means well ascertained. That there is a *something* in the soils of these vales, which gives a peculiar richness to whatever they produce, is to me evident; and to endeavour

to preserve, in hay, as much as possible of this richness, is indisputably good management.

The *degree of heat*, to which hay ought to be made liable, is an interesting subject, which is seldom agitated, and little understood; even in this country, where some little attention is paid to it. Something may depend on the species of stock, it is intended for. The prevailing opinion, here, seems to be, that, for fatting cattle, it ought to be moderately or somewhat considerably heated. For cows, however, there are dairymen, who say it should have little or no heat; giving for a reason,—that "heated hay dries up their milk."—These, however, I mention merely as opinions. They may be well grounded. If not, they may excite a spirit of inquiry, into a subject of some importance, in a grassland country.

The *expenditure of hay*, in this district, is chiefly on cows and fatting cattle; to which it is given either in sheds—yards—foddering grounds—or the ground it grew on;—in the manner, which will be mentioned, in the articles cows, and FATTING CATTLE.

3. AFTERGRASS. I find no regular ma-

nagement of it, here. The unstinted meadows are frequently turned into, the instant the hay is off the ground; and sometimes while no inconsiderable share of it remains in the meadow! Horses, cows, sheep, fatting cattle, and haycocks, being mixed in a manner sufficiently *picturesque* for the purpose of the painter; but in a way rather disgusting to those, who are aware of the waste they are committing: not of the hay, but of the aftergrass. In eight and forty hours after the whole of the hay is out, the meadow, thus misused, has the appearance of a sheep common in winter; not a bite of green herbage is to be seen; the whole being nibbled out by the sheep and horses, or trodden into the ground by cattle: nothing but the stubble, or dead stumps of seed stems, being left to cover the soil. These meadows, however, being free of growth, sheep, and even horses, may continue to get a living on them; and cattle may be kept from starving;—but cannot bring home any advantage to their owners.*

* This, however, is not general. Some of them, by ancient custom, are kept till the middle of September, before they be broken.

Nor is this illjudged practice confined within the unstinted meadows: but is frequently extended to inclosed grounds. A full bite of aftergrass is (this year at least) a rare sight in the country: I have seen very little fit for the reception either of cows or fatting cattle.

The line of right management is frequently difficult to draw. Different directions have their advantages and their inconveniences. By turning into mowing grounds, as soon as the hay is out of them, the Glocestershire farmer gives a loose to his pasture grounds; it is a *move* for his cattle: and if he would forbear a few weeks, to let his aftergrass rise to a sufficient bite, his management would, in my judgment, be much preferable to the Yorkshire practice; in which the cattle are kept in the pasture grounds, without moving, until the aftergrass be overgrown. See YORKSHIRE, Article AFTERGRASS.

VI. PASTURE GROUNDS.

1. Spring management.
2. Stocking.
3. Summer management.

1. SPRING MANAGEMENT. The hams, and the inclosed pasture grounds, are shut

up at different times, and opened about Old Mayday: some of the hams much too late; thereby encumbering the surface, unnecessarily, with weeds and stale grass; and lessening of course, the quantity of pasturable land.*

2. STOCKING. It seems to be a prevailing custom, to mix a few *sheep*, in the pasture grounds,——whether with *cows*, or *fatting cattle*.

3. SUMMER MANAGEMENT. This appears in what has gone before. They are swept, and sometimes mown; and have a respite from stock, while the *stubbles* of the mowing grounds are picked over.

* See YORKSHIRE, Art. PASTURES.

21.

HORSES.

THE BREEDING OF HORSES, for sale, is not, here, a practice. Most farmers rear their own plow horses; and a few saddle horses are also bred: but I have met with nothing in the practice of breeding horses, in this district, which requires to be registered.

The farm horses are of the fen breed:—but very useful ones of that sort: short and thick in the barrel; and low on their legs. The color is mostly black, inclinable to a brown, or tan-color.

The price of a six-year-old cart horse, of this breed, is twentyfive to thirtyfive pounds!

22.

SHEEP.

THE SHEEP is a MOUNTAIN animal. Even in its present cultivated state, HILLS afford its NATURAL ELEMENT. Uplands (or very sound dry middle lands) are the lowest stage on which sheep can be *reared*, with any degree of safety, to them, or with any degree of certainty, to their owner. Vale lands, in general, are, without great caution, certain ruin to both.

Formerly, some considerable flocks were kept, or attempted to be kept, in this vale: even breeding flocks were not uncommon in it. But the wet summer of 1782, swept the country of them. One farmer, who had for three or four years back, been recruiting his flock, and got it up to eight or nine score, had not, I was informed, in the autumn of 1783, more than three individuals left!

The low situation of this vale,—the singular retentiveness of its substrata,—and

the wateriness of its soils, through a want of surface draining,—conspire to render it, —what, from experience it is too well known to be,—singularly fatal to sheep.

How unaccountable, then, is the conduct of those, who attempt to keep store flocks in it? Nothing but the common error, which pervades almost every district,—that sheep are essential to farming,—can account for it.

At present, however, the vale, fully convinced of the folly of attempting to keep store flocks, changes its stock of sheep every year.

This species of stock, now, consists chiefly of ewes, bought in autumn, and having fatted their lambs in the spring, are themselves finished in the course of the ensuing summer.

The BREEDS of sheep, used in this practice, are mostly the *Ryland*, and the *Cotswold;* both of which will be described in the course of these volumes.

Formerly, some little FOLDING was done in the fallow fields: "but all the folding flocks are dead of the rot!" What folly! What *cruelty*—to drive this animal from its native heights; and force it into a situation

where it must inevitably become a prey to disease; and, at length, (if not released by the humane hand of a butcher), fall a victim to folly, by a loathsome, lingering death.

In a district so notorious, as this, for the ROTTING OF SHEEP, some accurate ideas of this fatal disorder were, of course, inquired after. An experienced husbandman, on opening a sheep, which he had killed for his own family, and finding a collection of water within it, pronounced the rest of his flock to be tainted. Water he has always found to be the first stage of the disorder: a "white scum" upon the liver, the next: the last flukes. From these circumstances, and from all the observations I have myself been hitherto able to make, on this subject, it appears to me *probable*,—that *an unnatural redundancy of water—unavoidably taken in with the food*—is the cause of the disorder.

23.

CATTLE.

CATTLE are the natural inhabitants of a vale country; and, in this vale, we find every description of them abound:—cows; REARING STOCK;—FATTING CATTLE;—and each of these of various species, or breeds.

Formerly, and perhaps not long ago, *one* breed of cattle might be said to possess the vale; a breed which still predominates, in some parts of it. It is known by the name of the GLOCESTERSHIRE BREED; and has, I understand, been common to the district, time immemorial. WELCH CATTLE, no doubt, may have been brought into the district, as *fatting cattle;* and of late years some considerable number of HEREFORDSHIRE OXEN have been fatted in it. But yet the *cows* and *rearing cattle* were of the Glocestershire breed.

Of still later date, however, an alien breed of *cows* have been introduced,—the

long-horned breed of Staffordshire, and the other midland counties,—by the name of the "NORTH-COUNTRY SORT." A breed, which, in a few years, have made rapid advances; and are likely to dispossess, in no great length of time, the naturalized breed. In 1783, dairies were mostly of the Glocestershire breed: in some, a mixture of the longhorned sort was observable;—and, in the lower vale, a few dairies were mostly of that breed. Now (1788) few dairies are left without admixture; and, even in the upper vale, there are some entire dairies of the longhorned breed. In general, however, they are an unsightly mixture of the two kinds; with, not unfrequently, a third sort, a mongrel kind, reared from an aukward cross between them. In the fairs and markets of the vale, scarcely any other than the north-country sort, and this mule breed, are to be seen.

Of the LONGHORNED CATTLE of the midland counties, I mean to speak fully, at a future time. WELCH CATTLE are extremely various: every province of the principality seems to send out a separate variety. They are invariably of the middle-horned breed; but, in regard to size, they vary, in regu-

lar gradation, from the largest ox to the lowest runt. The HEREFORDSHIRE BREED will be spoken of, under the head FATTING CATTLE, and in the article HEREFORDSHIRE, toward the close of these volumes. The Glocestershire, therefore, is the only breed which requires to be described, in this place.

The GLOCESTERSHIRE BREED OF CATTLE are a variety of the MIDDLEHORNED BREED. (See YORKSHIRE, Section CATTLE.) In size, they form a mean, between the *Norfolk* and the *Herefordshire* breeds. (See NORFOLK, Section CATTLE.) The head is mostly small; neck long; shoulder fine; and all of them generally clean. The carcass mostly long, with the ribs full, and the barrel large, in proportion to the chest and hind quarters. At the hips, they are mostly of due width; but at the nache, frequently narrow. The bone, in general, fine; the hide thin, and the hair short. The characteristic color, dark red,—provincially "brown;"—with the face and neck inclining to black; and with an irregular line of white along the spine. The horns fine, and rather long; but, in some individuals, placed aukwardly high on the forehead, and near at the roots:

in others, however, they stand low and wide; winding with a double bend, in the middlehorn manner.

The principal objections, to the Glocestershire breed of cattle, are, a deficiency in the chine, and too great length of leg; giving the individuals of this description, an aukward, uncouth appearance.

But no wonder. The breed has not had a fair chance of excelling. I have heard of only one man, within memory, who ever paid any especial attention to it; and this one man,* by some election strife (a curse in every county) was driven out of the vale, about seven years ago: so that, at present, it may be said to lie in a state of neglect. Nevertheless, it still contains individuals that are unobjectionable;—particularly the remains of the BODDINGTON BREED; and, with a little attention, might, in my opinion, be rendered a very valuable breed of cattle.

For *dairy* cows, I have not, in my own judgment, seen a better form. It is argued, however, that the northcountry cows, being *hardier*, stand the winter better, in the

* Mr. —— Long of Boddington.

straw-yard, and *fat* more kindly, when they are dried off. It should be recollected, however, that Glocestershire is a *dairy* country; and remembered, that it was the Glocestershire breed, which raised the Glocestershire dairy to its greatest height. Beside, the breed have long been naturalized to the soil and situation;—and certainly ought not to be supplanted, without some evident advantage; some clear gain, in the outset; nor even then, without mature deliberation; lest some unseen disadvantage should bring cause of repentance in future.

The three classes, enumerated at the head of this article, now require to be separately considered.

I. COWS. This being a dairy country, the *procuring* of cows, and the *size of dairies*; as well as the *treatment*, the *application*, and the *disposal* of cows, will require to be shown, separately.

1. PROCURING. Dairymen, in general, *rear* their own cows: some, however, *purchase* the whole, and others part, of their dairies.

The *point* of a milch cow, which is here principally attended to,—and which, no

doubt, is the main object of attention,—is a LARGE THIN-SKINNED BAG: I have, however, heard a large tail spoken of, in the true tone of superstition.

The following are the dimensions of a cow of the Boddington breed. A genuine, and a fair specimen, as to form; but not as to size: the cows of that celebrated breed were, in general, considerably larger. As a *milker* she had few equals; and, in my eyes, she was one of the handsomest and most desirable *dairy* cows I have yet seen. These dimensions were taken when she was five years old, off; she being then several months gone with her fourth calf.

Height at the withers four feet three inches.

——of the fore dug twentyone inches.

Smallest girt six feet and half an inch.

Greatest girt seven feet eleven inches.

Length, from the shoulder-knob to the center of the hip bone, four feet one inch.

——, from the hip to the out of the nache, twenty inches.

Width, at the hips twentytwo inches.

Width, at the nache, fourteen inches.

Length of the horn twelve inches.

The eye full and bright.
The ears remarkably large.
The head fine, and the chap clean.
The bosom deep; and the brisket broad, and projecting forward.
The shoulders thin, with the points snug.
The thigh likewise thin, notwithstanding the great width at the nache.
The bag large, and hanging backward; being leathery and loose to the bearing.
The teats of the middle size; gives much milk, *and holds it long*.
The tail large, the hide thin, and the bone remarkably fine.
The color a "dark brown;" marked with white along the back, and about the udder; with the legs, chap, and head, of a full, glossy, dark, chocolate color.
The horns a polished white; tipped with black.

The reason given, by the dairymen of this district, for *rearing* their own cows are, "that they should soon be beggared, if they had their cows to buy;" and "that they know what they breed, but do not know what they buy." The latter has much the

most reason in it; for, as they observe, if a heifer is not likely to turn out well, they sell her: on the contrary, if they went to market for their cows, they must buy the outcasts of other breeders. Besides, they endeavour to breed from known good milkers; such as milk well, not only presently after calving; but will *hold their milk*, through the summer, and the lattermath months: whereas in the market, they are subject to chance, and the deceptions of drovers: the most they have to judge from is the *size* of the bag at the time of the purchase. In suitable situations, there can be little doubt of the propriety of every dairyman rearing his own cows.

The *place of purchase*, in this district, is chiefly the market of Glocester, held every Saturday; to which, in the spring, from fifty to a hundred cows, of different breeds, *with calves by their sides*, are brought; by dairymen and drovers; but principally long-horned cows, brought from a distance, by the latter. In the Ladyday fair, at Glocester, there were not less than four hundred cows.

Some of the larger dairymen go, themselves, into the midland counties, to pur-

chase cows. But seldom, perhaps, with much advantage; the expence of the journey; the time lost; and the danger of a long drift, by unskilful drivers, probably, more than overbalance the dealer's profit. In cases, in which stock is required to be transferred, from one district to another, dealers become a useful class of men.

The *price* of a cow and calf, of the Glocestershire breed, has been, for the last ten years, eight to ten or eleven pounds; of the north-country sort, ten to twelve or thirteen pounds.

2. THE SIZE OF DAIRIES. In *this* vale dairies are not very large: twenty or thirty cows are a full sized dairy. Forty, I believe, the highest.* But farms are small, and of course numerous; and the number of cows kept are collectively very considerable.

3. TREATMENT OF COWS. Notwithstanding, however, the number of cows which are kept in this district, and the length of time which it has been celebrated as a dairy country, I have met with few

* In the VALE OF EVESHAM dairies are larger; fifty, sixty, seventy, and one or two of eighty cows each.

particulars, in its management of cows, that are entitled to a place in this register.

The *summer* management consists, chiefly, in turning them out, in the beginning of May, sooner or later, according to the season and the nature of the soil,—into a ground, or suite of grounds lying open to each other,—and there letting them remain, until some aftergrass be ready to receive them. The *shifting* of cows, from pasture to pasture, is spoken of, and may be sometimes practised, by a few individuals; but it is not the general practice of the country.

The *winter* management varies, with the characteristic of the farm, as to grass and arable. On farms which have much plowland belonging to them, the dry cows are kept in the strawyard, until near calving; when they are put to hay, in a separate yard, or a foddering ground. On farms which are principally "green," they are kept all winter at hay; in the open air, or under loose sheds; the practice of housing cattle in winter, in the north-of-England manner, being, it may be said, unknown in this quarter of the kingdom.

4. The APPLICATION of milk, in this district, is to *calves*, *butter*, *cheese*; princi-

pally to the latter; which forms no inconsiderable part of the produce of a vale farm; and the DAIRY MANAGEMENT becomes, in this case, too important a subject to be confined, as heretofore, within a subdivision of the Section CATTLE; requiring, in the present volumes, a separate Section. (see the next general head.)

5. DISPOSAL OF COWS. *Dairy cows* are sold *with calves at their sides*, in the manner which has been mentioned. *Heifers*, which miss the bull, or do not answer for the pail, also *young cows* that pass their bulling, and *aged cows*, which are usually thrown up at eight or nine years old, are, in the ordinary practice of the country, *fatted on the farm*, (in the way which will presently be described) and sold to the country butchers.

Thus, we find the dairymen of the vale of Glocester, not only rearing their cows from their own stock, but continuing them in their own grounds, after they have done their work as dairy cows, until they be fit for the slaughter:—a system of management, which is pleasing on the first impression; and which, by reason of its simplicity and perfection as a whole, affords, on

reflection, equal pleasure and satisfaction. There may be situations, which will not admit of this practice, in its full extent; but, in most cases, there can be no doubt of its eligibility.

II. REARING CATTLE. Breeding is here confined, in a manner wholly, to heifers for the dairy.

The number reared, from a certain number of cows, varies with circumstances; sometimes it may depend on the number of cow calves, dropped within the season of rearing; the demand for young cattle, the circumstances of the farm, and the individual opinion of the dairyman,—likewise influence the proportional number. The first breeder in the vale, seldom reared more than ten or twelve calves, from forty cows;—while another judicious dairyman reared nine or ten, from twenty cows.

In giving a sketch of the management of young cattle, in this district, it will be proper to separate the three distinctions: namely.

Calves.
Yearlings.
Two-year-olds.

1. CALVES. The *season of weaning* lasts,

from Christmas to Ladyday: seldom longer: late-weaned calves interfere with the dairy.

The *method of rearing* is pretty uniform: at least in the outline. The calf is usually taken from the cow, at two or three days old, and put to *heated milk*. The degree of heat, however, varies. In the practice of the first breeder in the vale, the milk was given to the calves *scalding hot!* as hot as the dairy-girl could bear her hand in it. The lips of the calves were not unfrequently injured by it. His reasons for this practice were, that the heat of the milk prevented the calves from scouring, made them thrive, and enabled him to put his rearing calves to skim-milk, immediately from their being taken from the cow, at two or three days old. They never tasted "best milk" after they were taken from the teat at that age!

This is an interesting instance of practice; and merits a few moments' reflection. Nature has evidently prepared milk, of a peculiar quality, for the infant calf; and this milk is useless in the dairy: it is, therefore, doubly good management, to suffer the calf to remain at the teat, until the milk

becomes useful in the dairy; which it usually does in two or three days. But although it becomes, to general appearance, similar to that of a cow which has been longer in milk, it is highly probable, that it is, *still*, singularly adapted to the yet infant state of the calf. In the *suckling* houses, round the metropolis, it is well understood, that putting a young calf to a cow, which is old in milk, will often bring on a scouring. It, no doubt, requires a degree of correction to render it fully acceptable to the stomach of the calf, at so early an age: and, if we may venture to judge from this instance of practice, *sufficiently authenticated*, scalding the milk, very highly, gives it the due correction.

Besides the scalded milk, this judicious manager allowed his calves split beans, oats, and cut hay. When they took to eat these, freely, water was, by degrees, added to the milk.

In the spring, they were turned into a large well herbaged ground; allowing them so good a pasture, that it was generally mown after them: and, during the whole of the first summer, they had the prime bite wherever they went.

"CALF-STAGES." The calf pen of this district is of an admirable construction: extremely simple; yet singularly well adapted to its intention. Young calves,—fatting calves more especially—require to be kept narrowly confined: quietness is *natural* to them, at an early age, and is in a degree essential to their thriving. A large pen, or a long halter, gives freedom to their fears, and a loose to their playfulness. Cleanliness, and a due degree of warmth, are likewise requisite in the right management of calves.

A stage which holds seven, or occasionally eight calves, is of the following description.—The house, or small room, in which it is placed, measures twelve feet by eight. Four feet of its width are occupied by the stage;—and one foot by a trough placed along its front; leaving three feet as a gangway; into the middle of which the door opens. The floor of the stage is formed of laths, about two inches square, lying lengthway of the stage, and one inch asunder. The front fence is of staves, an inch and a half diameter, nine inches from middle to middle, and three feet high: entered, at the bottom, into the front bearer

of the floor; (from which cross joists pass into the back wall) and steadied, at the top, by a rail; which, as well as the bottom piece, is entered, at each end, into the end wall. The holes, in the upper rail, are wide enough to permit the staves to be lifted up, and taken out; to give admission to the calves: one of which is fastened to every second stave; by means of two rings of iron, joined by a swivel; one ring playing upon the stave, the other receiving a broad leathern collar, buckled round the neck of the calf. The trough is for barley-meal, chalk, &c. and to rest the pails on. Two calves drink out of the same pail; putting their heads through between the staves. The height of the floor of the stage, from the floor of the room, is about one foot. It is thought to be wrong to hang it higher, lest, by the wind drawing under it, the calves should be too cold, in severe weather: this, however, might be easily prevented by litter, or long strawy dung, thrust beneath it.

It is observable, that these stages are fit only for calves, which are fed with the pail; not for calves which suck the cow.

Fatting calves are kept on these stages,

until they be sold: rearing calves, until they be three weeks or a month old, or until they begin to pick a little hay; when they are removed to a rack, and allowed greater freedom.

2. YEARLINGS. The first winter, they are usually allowed the best hay on the farm; and, the ensuing summer, such a pasture as conveniency assigns them. A distant rough ground, if such a one belong to the farm, is generally their summer pasture.

3. TWO-YEAR-OLDS. The second winter, heifers are generally kept at straw; except they have had the bull, the preceding summer; in which case, they are wintered on hay. But the most prevalent practice is, to keep them from the bull, until the ensuing summer; *bringing them into milk, at three years old.*

III. FATTING CATTLE. The district under survey, does not answer fully the description of a GRAZING COUNTRY; the DAIRY forms its principal characteristic. Nevertheless, there are numbers of cattle annually fatted within it.

There are two distinct species of grazing carried on, in this vale. The one, natural

to a dairy country; namely, that of fatting barren and aged cows; a species of grazing, which is pursued by *dairymen* and *farmers* in general: the other is that which, more particularly, characterizes a grazing country: namely, the practice of purchasing cattle, for the immediate purpose of fatting: a species of grazing, which is carried on here, by a few opulent individuals, only. Some of them, however, pursue it on an extensive scale; and in a manner, which entitles it to particular attention.

These two species of grazing require to be examined, separately. They are not only prosecuted, by two distinct orders of men; but the food—the cattle—the method of fatting— and the market, of each, is different. In one, the cattle are generally finished, in *yards*, or foddering grounds, abroad, in the open air, on hay alone. In the other, they are mostly finished in *stalls*, on hay and oil cakes.

1. FATTING IN THE YARD. The *foods*, or fatting materials, in this case, are solely GRASS and HAY. Sometimes, the cattle, in this mode of fatting, are freshened with summer grass, and finished with lattermath; but, more frequently, they are brought

forward, with grass, and finished, with hay; which, of this country, if well got, is found to force them on nearly as fast as grass.

Besides the CULLINGS of the DAIRY, a considerable number of WELCH CATTLE, of the smaller kinds, and generally cows or heifers; and some few HEREFORDSHIRE OXEN; are fatted in this way.

The principal *place of purchase*, of the Welch cattle, is Glocester market; to which, every Saturday, in the summer, the autumn, and the winter months, considerable numbers are brought.

The *summer management*, of this class of fatting stock, is no way extraordinary, nor particularly instructive. A distant ground is generally assigned them, for the double purpose of keeping them from the bull, and of giving the dairy cows the grounds that lie more conveniently to the yard.

The *winter management* is entitled to more attention. It commences, in the field, while the cattle are yet at grass; they being foddered, there, with hay, as soon as the grass begins to shrink; or sharp weather sets in. The grass done, or the weather becoming severe,—they are either brought into a *small dry grass inclosure*,

(near the homestall)—provincially a "fodder-ing ground"—where they have their fill of hay, given them three times a day, in round rodden cribs*, which are rolled

* RODDEN CRIBS. These are a kind of large basket; made of the topwood of willow pollards. Utensils common to this country, and to Lincolnshire; though situated on opposite sides of the island: but they are alike grassland countries, wherein cattle are fatted on hay. They are about six feet diameter. The height of the basket-work is two feet and a half; of the stakes three feet and a half; their heads rising about a foot above the rim of the basket. The width between the stakes twelve to fourteen inches. The size, that of large hedge stakes. The size of the rods vary from that of a hedge stake, down to a well sized edder.

In making these hay baskets,—the stakes are first driven, in a ring of the required size, firmly into the ground.——Some of the larger rods are then wound in at the bottom, in the basket work manner. Upon these, the smaller rods are wound; the middle part of the work requiring the least strength; reserving the largest for the top. In the winding and due binding of those, the principal part of the art of "withy cub making" rests. Some makers warm these thick rods, in burning straw: others wind them cold; one man drawing them in with a rope; while another beats them, at the stake, with a wooden beetle, until they acquire a degree of suppleness. They are mostly made by men, who go about the country, and who, by practice, make them very completely; winding in the top rods so firmly, and so regularly, that it is difficult to

upon the ridges of the lands, as the ground gets foul or poachy;—or in *yards*—provincially "courts"—in which the hay is given to them, in mangers, formed by a rodded hedge, running parallel with the outside fence; or in cribs—provincially "cubs"—of different sorts and descriptions, placed in the area of the yard.

While feeding out of these cribs, and mangers, the cattle, not unfrequently, stand to their knees in dirt; having, perhaps, an open shed to rest under; or, perhaps, only a small portion of the yard littered for that purpose: yet such is the sagacity and cleanliness of this species of animal, that, when they are at liberty to make choice of their bed, they will, if possible, choose it warm and clean. I have seen half a dozen fine

perceive, which has been the last put in; every part being equally secure.

In use, the cattle lay their necks between the tops of the stakes. Each being thus kept in its place, the master cattle are, in a degree, prevented from running round and driving away the underlings. The closeness of these cribs prevents a waste of hay, either by the wind, or by the cattle.

On the whole, they are useful, simple, cheap; and, if well made, will last several years.

oxen, worth, at the time I repeatedly observed them, twenty to thirty pounds a piece, fatting on hay, actually to their knees in dung; with only a corner of the small yard they were penned in, littered with stubble; and this corner, so small, there appeared to be scarcely room for the six to lie down together: nevertheless, their coats were always clean; and, if one might judge from the condition they were in, and the appearance of health and good habit they wore, they were perfectly satisfied with their situation. A fact which appears to me extremely interesting. The yard, in this case, was entirely open, (excepting some trees which overhung it) but was well sheltered from the north and east.

The *progress*, of this class of fatting cattle, depends much on the given size. The Welch sort, if purchased early in summer, will generally get sufficiently fat, with grass alone; and some cows the same: but in general these are finished with hay. If cows, which are put to lattermath, do not get fat on hay, by Mayday, they are sometimes sold, as forward stock, to *graziers*, of this or other districts. The oxen

are not expected to be finished, completely, in less than ten or twelve months.

The *purchasers* of this class (the oxen generally excepted) are the butchers of the district.

In estimating the value of fat cattle, here, the *butcher's allowance* of profit, on a cow of ten or twelve pounds price, is from one to two guineas.

The *proof*, expected from this class of cattle, at head keep, is from Welch cows 1*s*. 6*d*. to 2*s*. from dairy cows 2*s*. to 3*s*. from oxen 3*s*. to 3*s*. 6*d*. a week, at grass; and something more, at hay.

2. STALL FATTING. This may be considered as a modern practice, in the RURAL ECONOMY OF ENGLAND.

GRASS is the NATURAL food of fatting cattle. HAY probably, was first in use, for WINTER fatting. CORN has probably been used, on a small scale, time immemorial, for the same purpose. TURNEPS may have been applied to this purpose, in Norfolk, about a century. But OILCAKES, the residuum or bran of linseed, from which oil has been expressed, (the principal material made use of in the practice under notice) has not perhaps been used, in this intention,

more than half that period. They have not, in this district, been used, in quantity, more than 20 to 30 years.

At present, they are become a staple article of food, for winter fatting, in various parts of the island; but in no one of the five widely distant departments, I have observed in, are they used on so ample a scale, as in the district now under survey. There are two individuals who finish, annually, from one hundred to one hundred and fifty head of large bullocks, each. And a third, who fats a still greater number: not, however, on oilcakes, alone; but on the foods, and in the manner, which will be mentioned.

In giving a detail of this practice, it will be proper to take a separate view of.

1. The situation and soil of the district.
2. The foods or materials of fatting.
3. The breed, sex, and age, of the cattle fatted.
4. The places of purchase, and the observable points.
5. The summer management.
6. The winter management.
7. The market.
8. The produce.

1. *Situation.* This species of "grazing" is confined, chiefly, to the vicinities of Glocester, Tewkesbury, and Upton. The *oils*, whether of upland or meadow, is mostly rich, sound, and early. The upper grounds affording pasturage, and the meadows hay, of the first quality. If we except the margins of salt marshes, few situations are better adapted to summer grazing; and the navigation of the Severn is favorable to winter fatting. We may add to these advantages, the circumstance of one of the finest breeds of cattle, the island affords, being reared, on one hand; while the market of the metropolis is within a moderate distance, on the other.

2. The *foods* in use, for stall fatting, are HAY, CORN, "CAKES," LINSEED.

Hay is a standing article of food, in the stalls; being used, jointly, with one or more of the other articles; mostly, in its natural state; but, in some particular cases, it is cut, with straw, into what is termed chaff.

The species of *corn*, in use, are barley and beans, ground, and given dry, alone. But this is not a common material of fatting, in the district under notice, where

Oilcake, as has been said, is, next to hay, the main article of stall fatting. But the price of this article is now become so exorbitant, that it no longer, I am afraid, leaves an adequate profit to the consumer. Some years back, I recollect, it was the idea of men of experience, that it could not be used, profitably, as an article of fatting for cattle, at a higher price than three pounds a ton. Now (1788) it is, in some places, more than twice that price. The lowest price, at the more distant mills, is, I am well informed, five pounds; at Berkeley mills, six pounds; at Evesham, six guineas; at Stratford, six pounds ten shillings a ton.*

This extravagant price of the *cakes* has induced some spirited individuals to try the *linseed*, itself, boiled to a jelly, and mixed with flour, bran or chaff; and, from the information I have had, with favorable success.†

This novel practice requires a few mi-

* These prices fluctuating, from time to time, so much as 20*s*. a ton. Some few years ago, the price was higher, than it is at present.

† In Herefordshire, *linseed oil*, I am told, is used in a similar manner.

nutes reflection. From the present scarcity and dearness of cakes, it may be inferred, that the demand is greater than the quantity in the markets. If, therefore, the seed can be profitably used, though with only a small increase of profit, and with this even on a contracted scale, the use of it may operate very beneficially; by lessening the demand, and thereby lowering the present exorbitant price, of the cakes.

It is highly probable, however, that it may be used with much greater advantage, than cakes, at their present price. I have by me a sample of American seed, (nearly equal to the best Dutch seed I have seen,) which may now be imported for 38 to 40*s.* a quarter, of eight Winchester bushels. Supposing the bushel to weigh 50*lb*, the price of this prime seed is only eleven pounds, a ton. Ordinary seed might be had cheaper.

It is farther *probable*, that the superior kind of nutriment, which the cakes afford, proceeds from the unexpressed oil they contain, rather than from the husks of the seed, of which they appear to consist. This being admitted, and seeing the excessive

power which is used in extracting the oil, we may without risk conclude, that a ton of seed contains more than twice (*perhaps* five times) the nourishment which remains in a ton of cakes.*

Viewing the present subject, in a partial light, it might be said, that an unlimited and excessive use of a foreign article of fatting for cattle, might lessen the demand, and thereby lower the value of our

* LINSEED JELLY. The principal objection to this material is the trouble of preparing it. In an instance, in which it was used with success, the method of preparing was this. The proportion of water to seed was about seven to one. Having been steeped, in part of the water, eight and forty hours, previously to the boiling, the remainder was added, cold;—and the whole boiled, gently, about two hours; keeping it in motion during the operation, to prevent its burning to the boiler; thus reducing the whole to a jelly-like, or rather a gluey, or ropy consistence. Cooled in tubs: given, in this instance, with a mixture of barley meal, bran, and cut chaff; each bullock being allowed about two quarts of the jelly, a day; or somewhat more than one quart of seed, in four days: that is, in this case, about one sixteenth of the medium allowance of cake.

This, however, is thrown out, as a general idea; not drawn as an inference: the comparative effect of these two materials of fatting, forms an important subject, for the decision of experiment.

own productions, applicable to the same purpose; to the injury of the landed interest. If, however, we consider that, by the use of foreign linseed, an influx of the first vegetable manure we are acquainted with, would be diffused over the soils of this country; and that wheat may be exported at a price, more than equivalent to the present price of linseed; the landed interest would seem to have no cause of alarm;—while in a more general point of view, the importation of linseed from AMERICA might be a national good. I understand, from intelligence of the first authority, that some of the finest provinces of that distressful country are in a manner destitute of marketable returns, for the produce and manufactures of this kingdom; and further, that linseed, which can there be grown in unlimited quantities, is at present a drug in the American markets.

But this by the way, FLAX SEED cannot yet be considered as an established article of food for cattle, in this district; in which GRASS, HAY, and OILCAKES are the prevailing foods of the species of fatting cattle, now under consideration; and to those,

only, I shall confine myself, in the following remarks.

3. *The cattle*, which are subjected to this mode of fatting, are chiefly HEREFORDSHIRE OXEN, which have been worked in the breeding country, and thrown up, after barley seedtime, in working condition; or have been kept over the summer, and sold "fresh"—that is forward in flesh—to the graziers, in autumn.

Besides these, some of the larger breed of oxen of South Wales, particularly of Glamorganshire, also of Wyeside in Glocestershire, as well as round the forest of Dean, and in the over-Severn district, also some Somersetshire, and some few Devonshire oxen,—are fatted here; but these, collectively, are few, in proportion to those of the Herefordshire breed; which, alone, I shall consider as the objects of stall fatting, in this district.

The AGE, at which these oxen are usually fatted, is *six years old!*

I do not mean to censure the workers of these oxen, for throwing them up, in their prime, as beasts of draught; much less to blame the graziers, for fatting them, or the

butchers for slaughtering them, in that useful stage of life; but I cannot help expressing some regret, on seeing animals, so singularly well adapted to the cultivation of the lands of these kingdoms, as are the principal part of the six-year-old oxen of Herefordshire, proscribed, and cut off, in the fulness of their strength and usefulness.

The graziers, indeed, considered merely as such, do not, in this case, come within the reach of censure. They know, from experience, that the cattle under observation generally leave them the most profit, at that age. Some few individuals, however, will, it is said, *grow* (that is, spread out in carcass) *as well as fat* (the two things desirable to the grazier) at seven years old. But after those ages, having ceased to *grow*, they pay for *fatting* only.*

It is, however, allowed that a full-aged ox *tallows* better, than a young growing ox. But, on the other hand, it is argued,

* I have met with an idea, in this district, that a gummy, thick-thighed, hard-fleshed ox should not only be kept to a greater age, than one of the opposite description, but should be worked down, low in flesh, previously to his being finally thrown up for fatting.

that oxen which are hardly worked and hardly kept, become flat-sided, lose the laxity of their fibres, and do not, on being fatted, fill up so well in their points, as younger oxen, which have been less hardly used.

This, however, is not good argument against the general position: oxen, whether young or old, should never be worked down, into a state of poverty of carcass: but ought, at all times, to be kept as full of flesh, as their activity will permit. If horses pay for being kept up in carcass, while they are worked, how much more amply would oxen pay for a similar treatment.

But argument becomes superfluous, where facts are produceable. There is one instance, mentioned in this district, in which an ox was worked until he was FIFTEEN YEARS OLD, and then fatted "tolerably well." And a still more valuable incident than this occurred, in the practice of the first grazier within the district immediately under observation;* in which instance *three* oxen were *finished*, in the usual time allowed for six-year-old oxen; which three

* Mr. DARKE of Bredon.

oxen were EIGHTEEN YEARS OLD; a fact that I have singular satisfaction in registering.*

4. *Purchase* and *points*. The *places of purchase* are the fairs of Herefordshire: held at the different towns of the county, in almost every month of the year; and those who pursue this species of grazing, on a large scale, may be said to purchase, the year round. But spring and autumn, as has been intimated, are the principal *times of purchase*. Lean, in the spring for sūmmer grazing; and forward, in autumn, for more immediate stall fatting.

The *favorite points*, by which graziers make choice of the individuals of this breed of cattle, are *similar* to those which are observed in other districts; yet they are not altogether the *same*. In different districts, I find that graziers, in their choice of cattle, are not only particularly observant of different points; but have, in some measure, distinct criterions to judge by: and I am of opinion, that different breeds or varieties of cattle require such a difference of judgment.

Every variety of cattle has a tendency

* These oxen were bred, and kept to that age, by Mr. Cook of the Moor, near Hereford.

to degenerate; and each appears to have its peculiar propensity, in degenerating. Thus the Glocestershire breed become, under neglect, narrow in the chest, light in the hind quarters, and long upon the legs. The Herefordshire breed,—get a lumpishness of carcass, and a heaviness of the limbs. The longhorned breed, on the contrary, become gaunt in the carcass, coarse in the forehand, and thick in the hide. While the Holderness breed tend to a gumminess of the hind quarters, and a hardness of flesh.

These observations, however, are, at present, offered incidentally; to endeavour to reconcile the jarring opinions of professional men, on this subject. I perceive a captiousness, in every district, among men who stand high in their profession; arising from a partiality toward the particular breed, they are most conversant with; and from a want of a more general knowledge of the several breeds of the island at large.

The profits of grazing rest, in a great measure, on the proper choice of the individuals to be fatted; be the species, or the variety, what it may. And although a quick

and accurate judgment, in this case, as in almost every other, can be matured by practice, only; yet the groundwork is certainly reduceable to science. If from men of experience, and superior judgment, we can ascertain the criterions of good and bad qualities of the several breeds of the animals to be fatted, the student will be enabled to acquire the requisite judgment, *much sooner*, than he could without such assistance.

From my own observations, corrected and made more full and perfect by those whose experience has rendered them adequate judges of the subject, I am fully authorised, I trust, to set down the following, as desirable qualities in the Herefordshire breed of oxen.

QUALITIES *desirable* in a Herefordshire ox, intended for GRAZING.

The *general appearance* full of health and vigour, and wearing the marks of sufficient maturity;—provincially "oxey"—not "steerish"—or still in too *growing* a state, to *fat*.

The *countenance* pleasant, chearful, open: the forehead broad:

The *eye* full and lively.

The *horns* bright, taper, and spreading.

The *head* small, and the chap clean.

The *neck* long and tapering.

The *chest* deep; the bosom broad,* and projecting forward.†

The *shoulder bone* thin, flat: no way protuberant in bone; but full and mellow, in flesh.

The *chine* full.

The *loin* broad.

The *hips* standing wide, and level with the spine.

The *quarters* long; and wide at the *nache*.

The *rump* even with the general level of the back: not drooping; nor standing high and sharp above the quarters. The *tail* slender and neatly haired.

The *barrel* round, and roomy: the carcass, throughout, being deep and well spread.

The *ribs* broad; standing close; and flat on the outer surface; forming a smooth even barrel: the hindmost large, and of full length.

* In a WORKING OX this is a most desirable point.

† This is, here, a very popular point, whether in a cow or an ox.

The *round-bone* small; snug; not prominent.

The *thigh* clean, and regularly tapering.

The *legs* upright and short.*

The *bone*, below the knee and hough, small.†

The *feet* of a middle size.

The *cod* and *twist*, round and full.

The *flank* large.

The *flesh*, everywhere, mellow, soft; yielding pleasantly to the touch; especially on the chine, the shoulder, and the ribs.

The *hide* mellow, supple; of a middle thickness; and loose on the nache and huckle.

The *coat* neatly haired, bright, and silky; its color a middle red—with a "bald face:" the last being esteemed characteristic of the true Herefordshire breed.

* It may be disputable whether the legs of a WORKING ox ought to be short, or of a middle length. Cattle are naturally heavier, less active, than horses; whose legs are seldom found too short in harness. Nevertheless, oxen may require some length of leg, to assist them in travelling. It is observable, however, that the best working ox, I have known, had remarkably *short* legs.

† In a WORKING OX, the *sinew* should, nevertheless, be large.

QUALITIES *exceptionable* in a Herefordshire ox, for grazing.

The *general appearance* sluggish; spiritless; lumpish;—or aukward, through a deformity in make, or a want of sufficient maturity.

The *countenance* heavy, sullen, "cloudy."

The *eye* hollow and dull.

The *horns* coarse and thick; provincially "goary."

The *head* large, thick; the chap coarse and leathery.

The *neck* short, thick, coarse; loaded with leather and dewlap; "throaty."

The *shoulder points*—provincially, the "elbows"—standing wide;—or projecting forward.*

The *chine*—"keen;"—that is, rising sharp above the withers:—and hollow behind the shoulders.

The *loin* contracted; narrowing to a point at the chine.

The *hips* standing narrow; or placed below the general level.

* This is, here, spoken of as the most hateful point an ox can possess: while, in other districts, it passes, comparatively, unnoticed. In a WORKING OX, it is, especially in harness, a very great fault.

The *rump* drooping;—"goose-rumped;" —or the tail set on too high; standing above the level of the spine.

The *quarters* short, falling, and narrow at the nache.

The *barrel* contracted, upward; the ribs dropping flat from the chine—"flatsided;" forcing the entrails downward—"cow-bellied."

The *ribs* narrow, and placed at a distance from each other; leaving vacancies between them; throwing the surface of the barrel into ridge and furrow.

The *round-bones* large; bulging out wide, in proportion to the hips.

The *haunches* fleshy;—"brawny."

The *limbs*, in general, large and unwieldy.

The *hind legs* crooked, inward at the gambrels; or the fore legs, at the knees.*

The *shank* long and thick.

The *feet* large, with the claws spreading.

The *cod* flaccid; with the point hard and knobby.

* This is a defect, amounting, in some cases, to an infirmity. I have observed it in an inferior degree, in other breeds; especially in the fore legs. In a WORKING OX, it is an insurmountable objection.

The *flank* thin, single.

The *flesh*, on the chine and ribs, hard.

The *hide* harsh, thick, and sticking to the carcass.

The *coat* staring,—"sett,"—not lying close; appearing dead, faded, not alive and glowing:—symptoms, these, of a diseased habit.

5. *Summer management.* The management of grazing, in this district, has been represented, aforegoing, as not being sufficiently interesting to require to be *detailed:* nor do I, in this department of it, find any *particulars* entitled to special notice. In saying this, however, I do not mean to intimate, that it is more reprehensible, than that of other grazing districts. Indeed, it is not, in this case, the main object of practice; being only used as a preparation to STALL FATTING.

6. *Winter management.* This, for reasons already given above, will require to be analyzed; and each part to be described in detail. And previous to this detail, it will be requisite to describe the building in use, here for winter fatting.

"OX-STALLS." What characterizes the bullock sheds of this district, and distin-

guishes them from those of every other, I have observed in, is the circumstance of each bullock having a *house* and a *yard* to himself; in which he goes loose; occupying them by turns, as appetite or amusement directs him; having a manger and a drinking trough, to go to at pleasure. He, of course, eats when he is hungry, and drinks when he is thirsty. He is also at liberty to rub, or to lick himself; as well as to keep his body in a degree of temperature, as to heat and cold. Theory could not readily suggest more rational principles.

The construction of these stalls varies in the minutiæ. The water trough, for instance, is sometimes placed by the manger, in the hovel or shed:—sometimes in the open pen. Other less noticeable variations may be seen, in different buildings.

The plan and dimensions, which, at present, seem to stand highest in esteem; and on which several erections of this nature have been made, within the last fifteen or twenty years, are the following.

The building is fifteen to fifteen feet and a half wide, within, and of a length proportioned to the number of stalls re-

quired. The height of the plates is six feet to six feet four inches; supported, on the side to the north or east, by close walling; on that to the south or west, by posts, set on stone pedestals. The gables walling. The covering plain tiles, on a single pitch roof.

Against the back wall, is a gangway, three and a half, to four feet wide, formed by a length of mangers, three feet to three and a half feet wide, from out to out, at the top; narrowing to about fifteen inches, within, at the bottom. The perpendicular depth, fourteen or fifteen inches; the height of the top rail from the ground, about two feet nine inches. The materials, two-inch plank; stayed and supported by posts and cross pieces; and stiffened by strong top-rails.

The dimensions, of the area of the covered stalls, about eight feet three inches square; of the open pens, the same.

The partitions, between the stalls, are of broad rails, passing from the outer pillars, to smaller posts, rising on the inner or stall side of the manger; and steadied, at the top, by slender beams, reaching across the building; each stall, or each

partition, having a beam and a pair of principals.

The partitions of the pens are gates, reaching from the pillars to the boundary wall; and likewise from pillar to pillar. When they are fixed in *that* situation, each bullock has his stall and his little yard. When, in *this*, each is shut up in his stall; the yards forming a lane, or driftway, for taking in, or turning out, any individual.

The boundary wall of the pens is about four feet high; coped with blocks of copper dross. On the outer side of it, is a receptacle for manure; on the inner, a range of water troughs; with a channel of communication for the conveniency of filling them. The materials of the troughs, stone;* of the channel, gutter bricks, covered with slabs.

* STONE TROUGHS. These troughs, which are about fourteen inches by two feet six inches within,—have a conveniency in their construction, which is entitled to notice. Instead of the sides and the ends being all of them pecked down to an angle, square with the bottom, one of the ends is left bevelling, sloping, making a very obtuse angle with the bottom. This simple variation renders them easy to be cleaned; either with the shovel, or the broom.

The floor is paved with hard-burnt bricks, laid edge-way in mortar; being formed with a steep descent from the wall, to a channel, some three or four feet from it; and with a gentle fall from the manger to the same channel; which becomes the general drain for rain water and urine.

At one end of the pens, is a pump (where a natural rill cannot be had), for supplying the troughs with water; and, at the other, a stack of stubble, for litter; which is used in the stall only; the yard being left unlittered.

At one end of the building, is a cake-house; at the other, the rick-yard; with a door, at each end of the gangway, to receive the hay and the cake.

In one or more instances, I have seen a double range of stalls, on this plan; the area between them being the common receptacle for the dung. When a number of stalls, as twenty or thirty, are required, this arrangement brings them within a convenient compass; and the two ranges, with a proper aspect, become shelter to each other.

Beside these *loose* stalls, there are others, built nearly on the same plan, but without gates, and on a somewhat smaller scale, in

which the cattle are *fastened* to the manger, or the partition posts, with a long chain, which gives them liberty to rub and lick themselves, and move a little in their stalls. In this case, a water trough is generally placed, at the end of every second partition, level with the manger, with a general pipe of communication to fill them; each trough supplying two bullocks. This plan lessens the expence, in some degree, and prevents the bullocks from fouling their mangers.

There are individuals in the district, who have fifty, or more, of one or the other of these stalls, on their respective premises.

Treatment of stalled Bullocks.

The number of oxen to a given quantity of hay.

The requisite attendance.

The season of stall fatting.

The stated times of feeding.

The quantity of cake eaten in a day.

The manner of feeding with hay.

The progress of oxen at cakes, and

Putting them from dry meat to grass,—are subjects, which now require to be separately mentioned.

A. The NUMBER OF OXEN, requisite to a certain quantity of hay laid up, depends on their size, on their state as to forwardness, and on the quantity of cake intended to be consumed with it. In places, where hay is a dear article, cake is the principal food; a small quantity of hay, cut with wheat straw, being given them between the meals of cake; by way of what is termed cleaning their mouths, as well as to correct the overrichness of the cake. On the contrary, in this district, where hay is generally plentiful and cheap, cake becomes, in most cases, secondary; hay being considered as the principal material of fatting. A man, whose practice is extensive, and whose character, as a grazier, is of the first cast, estimates a fullsized bullock to consume, in six months, two tons of hay; being allowed, in that time, fifteen hundred weight of oilcake.

B. The requisite quantity of ATTENDANCE depends, in some degree, on circumstances. The usual calculation is made on one man to about twenty head of oxen;—cutting hay, breaking cake, feeding, watering, littering, and keeping clean inclusive.

C. The SEASON of stall fatting lasts, in this district, from November to May; commencing when the aftergrass is gone, or sharp weather sets in; and closing with the finishing of the bullocks; or when a full bite of spring grass is formed.

D. The STATED MEALS vary with the proportion of hay and oilcake, and with other circumstances. In the ordinary practice, three meals of hay; one in the morning,—one at noon,—one in the evening;—and two of cake, one in the forenoon,—the other in the afternoon; are the prevailing number of meals, and the usual times of feeding.

E. The QUANTITY OF OILCAKE, which is usually given each bullock at a meal, is about a quarter of a peck of broken cake;—giving, at the two meals, about half a peck, a day.* When it is found requisite to force them forward for a market, the quantity is sometimes increased to near a

* The cakes are broken in a large mortar; with a wooden lever-like pestle, shod with iron, or with a beetle, or a small sledge hammer, in a wooden trough; or are ground, in a cider mill; reducing them into fragments, of two or three square inches each, down to those of a much smaller size.

peck of broken cake, a day. But, in hits case, it is given them at three or more meals; it being dangerous to cloy them with this species of food; which is liable to make them sick,—and, in consequence, to loathe it, perhaps, for several days; and, in some cases, to persevere in refusing it. In open yards, where oilcake is sometimes given to loose bullocks, this accident not unfrequently happens; the master bullocks having an opportunity of eating more than their share. But in stalls, where each ox has no more than the quantity which is assigned him, this inconveniency can happen through imprudent management, only.

F. The METHOD of feeding, with HAY, appears in what has passed: it is given to them, uncut, two or three times, a day, according to the number of meals of cake, which they have allowed them.

G. The PROGRESS of oxen, and the length of time requisite to FINISH them, in stalls, depend on the specific quality of the bullocks themselves, on the state, as to forwardness, in which they are taken up, and to the quantity of cake they are allowed. In the species of grazing now under notice,

a large ox, which is bought in lean, is expected to take from ten to twelve months, to finish him for Smithfield market. If bought, in May—June, for instance, he has the summer's grass, and lattermath, until, perhaps, the middle of November; when he is put to cake; and sent off to market, at Candlemas, Ladyday, or Mayday, according to the progress he has made; or as the chance of a good market may direct.

They are seldom, however, kept the whole of the winter, in STALLS; the head bullocks, only, being stalled at the beginning of the season; the rest having a smaller allowance of cake given them in OPEN YARDS; or, perhaps, have an allowance of hay, only, in the FIELD. As the stalled bullocks go to market, their places are supplied by the forwardest of those which are more at large.

H. If the last-stalled bullocks are not finished, sufficiently for market, before spring grass is fit to receive them, they are sometimes TRANSFERRED FROM THE STALLS TO THE FIELD; and there have been instances, in which this was done with considerable advantage; though, in general,

it does not seem to be considered as an eligible practice. It is sufficiently ascertained, however, that there is no danger in this expedient; and that the cattle, if they do not improve by it, may, at least, be kept from sinking.

If CAKE be continued to them, at GRASS, there can be no doubt of the practice being frequently adviseable. The markets for fat cattle are generally low at the close of the winter-fatting season. On the contrary, from that time, until grass beef be ready, they are mostly favourable to the seller.

7. The *market*, for this species of fatting cattle, is Smithfield; to which they are driven, by occasional drovers, engaged for the purpose: there being no stationed drovers, here, as in Norfolk (see NORF: ECON.) The usual time upon the road is eight days: the distance, about a hundred miles. They are chiefly (or wholly from *this* district) consigned to salesmen. The expence of drift, salesman, toll, &c. is generally about ten shillings, the head.

8. The *produce*, of oxen fatted in this manner, will, if valued according to the popular mode of estimation, appear to be very low. They are not expected, during

the ten or twelve months fatting, to produce more than *two thirds* of their first cost; while there are many breeds of cattle, in this island, whose individuals would more than *double*, some of the smaller kinds *treble*, their first cost, in the same time, with the same keep.

Lest this fact should be brought, as an argument, against the Herefordshire breed of cattle, or the Glocestershire method of fatting them, it may be proper to intimate, that although large cattle consume, on a par, more food, than those of a smaller breed; yet it is more than probable, that the disparity does not keep pace, with the difference in their first costs. Thus, it is not probable that an ox, of fifteen pounds cost, should consume as much food as three cows, of five pounds, or five Welch heifers, of three pounds, each.

The present price of this breed of oxen, in working condition, immediately out of the yoke, at six years old, is ten to sixteen pounds each. In the ordinary estimation of the country, it is expected, that these oxen should produce, *at grass*, from three shillings to three shillings and sixpence, a week; at *hay and cake*, from six to seven

shillings; or, the largest size, at high keep, seven shillings and sixpence, a week; leaving, at the end of ten to twelve months, a gross produce of seven to nine or ten pounds. Twentyfive pounds is not an uncommon price, for a bullock of this breed, in Smithfield market: there has been, I understand, several instances in which the Herefordshire breed of oxen, fatted in this district, have fetched thirty pounds the ox.

24

MANAGEMENT

OF THE

DAIRY.

THE OBJECTS of the dairy, in this district, are

Calves.
Milk butter.
Cheese.
Whey butter.
Swine.

But previous to an account of the management of each object, individually, it will be proper to notice some subjects, which have a general relation to the whole. These are

1. Managers.
2. Dairy room.
3. Utensils.
4. Milking.

1. MANAGERS. The management or immediate superintendance of a large dairy, especially one of which cheese is the principal object, is not a light concern. It requires much thought, and much labor. The whole of the former, and much of the latter, necessarily falls on the immediate superintendant; who, though she may have her assistants, sees, or ought to see, herself, to every stage of the business; and performs, or ought to perform, the more difficult operations.

This arduous department is generally undertaken, by the MISTRESS OF THE DAIRY; especially on middlesized and small farms. In some cases, an experienced DAIRY MAID is the ostensible manager.

There are three things principally requisite, in the management of a dairy:

Skill,
Industry,
Cleanliness.

Without the first, the two latter may be used in vain: and a want of the last implies a deficiency in the other two. Cleanliness, may, indeed, be considered as the *first* qualification of a dairywoman; for, without it, she cannot have a fair claim to either skill or industry.

With respect to CLEANLINESS, the Glocestershire dairywomen stand unimpeachable. Judging from the dairies I have seen, they are much above par, *in reality*;—though not so, to common *appearance*. A cheese dairy is a manufactory—a workshop—and is, in truth, a place of hard work. That studied *outward neatness* which is to be seen, in the *show dairies* of different districts, and may be in character, where *butter* is the only object, would be superfluous in a CHEESE DAIRY. If the room, the utensils, the dairywoman, and her assistants, be sufficiently *clean*, to give perfect SWEETNESS to the produce, no matter for the *color*, or the *arrangement*. The *scouring wisp* gives

an outward fairness; but is frequently an enemy to real cleanliness. The *scalding brush*, only, can give the requisite SWEETNESS: and I have seen it no where more diligently used, than in Glocestershire.

Cleanliness implies INDUSTRY. A Glocestershire dairywoman is at hard work, from four o'clock in the morning until bed time.

Her degree of SKILL requires not to be spoken of, here; as it will better appear, in the following detail, than in any general observations that can be made upon it.

2. The DAIRY ROOM. The chief peculiarity, observable in a Glocestershire dairy room, provincially "dairy house," is that of its generally having an OUTER DOOR, opening into a small yard, or garden place; while the dairy of most other districts, is cooped up in a corner, with only a small window for the admission of air and light; every thing being dragged, in and out, through a number of inner doors, or perhaps rooms or passages. But an outer door gives a freer and more general air; and a much better and a more commodious light; besides rendering the business of cleanliness more easy. In the dairy yard there is, or ought to be,

a well; with proper benches, and other conveniences, for washing and drying utensils.

The room, too, is large and commodious: 15 feet by 18 may be considered as a middle-sized dairy. The cheesemaking, and the churning, are done in the "dairyhouse:" so that the entire business is collected, into as narrow a compass as may be: a circumstance of some importance, in a large dairy; and, in a small one, the advantage is proportional. The *floor* is generally laid with stone. The *shelves* are mostly of elm, or ash.

With respect to ASPECT, the outer door, when well placed, opens near the northeast or northwest corner: the window on the north side: the inner door, on the south side, opening into the kitchen.

A dairy room, on this plan, is as commodious as art can well render it, or as occasion requires.

3. UTENSILS. A detail of the furniture of a dairy may appear uninteresting; and, by some readers, be thought unnecessary. It would be difficult, however, to give a minute account of the method of carrying on the *manufacture*, without describing the

tools in use: a description of them is little more than a definition of technical terms. Perspicuity requires it.

1. *Milking pail.* The shape nearly that of a bushel. It is formed of staves and hoops; with *one* "handle stave" rising three or four inches above the rim. (The Yorkshire *skeel* with one handle.) The diameter about fifteen inches; the depth about ten inches. Staves oak—hoops (broad and close) ash.

2. *Milk cooler;* provincially "cheese cowl." This is a large strong wooden vessel, proportioned in size to the number of cows. From eighteen inches to two feet deep: and from two to three feet diameter. Two opposite staves rise above the rest: the head of each having a hole in it, large enough to admit a pole; for the purpose of moving it, or carrying it on men's shoulders; answering the purpose, occasionally, of what in some districts is called a *bearing tub;* in others a *cowl.*

3. *Strainer; or milk sieve.* Made sieve-form: twelve or fourteen inches diameter: five or six inches deep: some with hair bottoms; others have cloth bottoms; which are taken out every day to wash. A frond

or leaf of fern is frequently placed at the bottom of the sieve, to prevent the milk from flying over.

4. *Sieve holder;* provincially "cheese ladder."—This is laid across the cooler, to place the *milk sieve* or strainer upon. It has, here, a valuable singularity of construction: at one end, are two cross bars, about three inches asunder. This vacancy admitting one "ear" or handle of the cooler, the ladder is kept securely in its place. The wood, ash.

5. *Lading dish.* The usual shape, but large; near a foot diameter.

6. *Pail brushes.* Common hard brushes; furnished with bristles at the end, to clean out the angles of the vessels more effectually. Utensils, or rather tools, which no dairy ought to be without. Yet, in many districts of the kingdom, their uses are unknown.

7. *Pail stake.* A simple contrivance; or rather a *thought*, which one would imagine, no person, having dairy utensils to dry, could miss; yet it appears to have been hit upon in this country, only. In other districts, I see milking pails, &c. placed upon benches, or upon walls, to dry; where they

are liable to be blown down by the wind, or thrown down and burst by other means. Here, a bough, furnished with many branchlets, is fixed with its but end in the ground, in the dairy yard. The branchlets being lopped, of a due length, each stump becomes a peg, upon which to hang a pail, or other utensil.

8. "*Skeels.*"—These are broad shallow vessels; principally for the purpose of setting milk in, to stand for cream: made in the tub manner, with staves and hoops, and two stave handles: of various sizes, from eighteen inches to two feet and a half diameter; and from five to seven inches deep. Staves oak; hoops (broad and close) ash.

9. *Skimming dishes.* If of wood, very thin. But chiefly of *tin*. About eight inches diameter; and five eighths of an inch deep.

10. *Cream jars.* Cream is chiefly preserved in earthen jars, of a middle size.

11. "*Cream slice.*" A wooden knife; somewhat in the shape of a table knife. Length twelve or fourteen inches.

12. *Churns.* Upright and barrel churns are in use. The barrel churn having one fixt and one loose handle. Noway excellent in their construction. Butter is, here,

a *secondary* object. The Yorkshire churn is preferable: but this might be expected: there, butter is the *primary* object of the dairy.

13. *Butter board, and trowel.* A broad board, and a wooden spatula, used in "printing" the butter.

14. *Butter prints.* The halfpound print four inches diameter.

15. *Butter scales.*—Of the ordinary construction.

16. *Cheese knife.* A wooden handle, four or five inches long, furnished with two or three iron blades, twelve inches long, and one inch broad, at the handle, down to about three quarters of an inch, at the point; with two blunt edges, rounded at the point, like an ivory paper-knife. The distance between the blades, which are very thin, and ranged with their flat sides toward each other, about an inch.

17. *Cheese vats.* From fifteen to fifteen and a half inches diameter; and from one and a half inch to two inches deep. The wood invariably elm. Some with, but many without holes.

18. *Cheese cloths.* Made of thin gauze-

like linen cloth. The size varies in different dairies.

19. *Cheese press.* The construction various. Sometimes single; but, in large dairies, generally double. The pressure is mostly given by a dead weight, raised by a roller, and falling, perpendicularly, on the cheese. In the upper vale, they are chiefly of stone. The dimensions of one, of a superior weight, are twentytwo inches square, by two feet two inches long; containing 12,584 cubical inches of freestone; weighing (on the supposition, that its specific gravity is an ounce and a half to an inch) somewhat more than half a ton.

But, by an accurate experiment, I found, that a cubical inch of similar stone (freestone of the Cotswold cliffs) weighs only 500 grains. Therefore, calculating the pound avoirdupois at 7,000 grains troy, the stone under notice weighs eight hundredweights.

The dimensions of other three (all of the same size and in the same dairy) are 20 inches wide, by 14 deep, and two feet four inches long: containing 7,840 cubical inches of Cotswold freestone: consequently weigh no more than five hundredweights, each.

These are of the *old construction;* which is *very* simple. In the center, is fixt a wooden skrew, rising three or four feet, perpendicularly, above the stone; passing through a hole in a cross beam, which rests on the cheeks of the press. Above this cross piece, is worked a loose nut, made out of a piece of wood, eighteen inches to two feet long, and of a diameter proportioned to the size of the worm. Each end is reduced to the size of a handle; and, with this two-handled nut, the stone is raised and lowered. The perpendicularity of the skrew keeps the base of the stone horizontal; and, to keep it more steady in its place, it is notched, at each end, about an inch deep, to admit the cheeks, or slips nailed on the inner side of them, for that purpose.

4. MILKING. The hours of milking are, here, early: about five in the morning, and four in the evening; in order to give due time for finishing the requisite business of the dairy, before bedtime.

Where a large dairy of cows are kept, the whole family (excepting those who have the care of the teams) muster to milking. An indoor servant, by the name of a "milking man," is generally kept, in the larger dai-

ries, for the purpose of milking, churning, and otherwise assisting in the business of the dairy: he has the care of the cows, and the cow grounds; and is considered as a principal servant.

When the "COW GROUND" lies near the house, the cows are generally brought into the yard, or other small inclosure: if the pasture lie at a distance, the pails are always carried to the cows. Also, if the ground be very wet, and poach with the cows travelling over it, judicious dairymen have the pails carried to them. In more than one instance, I have seen a horse and a barrel cart employed, to take the milk from a distant meadow, or cow ground, to the dairy house.

The practice is to milk the cows, unfettered; and to use square-topped, four-legged stools; resting one side of the bottom of the large pail, here in use, against two legs of the stool; while the other two give firmness to the seat.

The MANAGEMENT of the particular OBJECTS of the dairy, now requires attention.

I. CALVES. These, being the first produce, and as it were the origin of dairies, require to be first noticed.

The REARING OF CALVES has been already spoken of, in p. 223. The method of fatting them remains to be mentioned, in this place.

The FATTING OF CALVES being, here, a *subordinate* object of the dairy, no very accurate ideas on the subject must be expected: the late-dropt calves are an encumbrance on cheesemaking, the primary object, and are, of course, got rid of, as soon as possible. One singularity of management, however, requires to be noticed.

Calves, whether for rearing or fatting, are seldom suffered to *suck*, more than two or three days; sometimes they are put to the *pail*, as soon as they are dropt; the milk being, I believe, pretty universally, passed through the *kettle*; and given to the calves, *warmer*, than it comes from the cow. On the increased heat of the milk, the advantage of this *unnatural* mode of fatting is, *here*, thought principally to hinge. See YORK: ECON: on this subject.

II. MILK BUTTER. In the upper vale, mil kbutter forms a considerable object of the dairy: not only, in the spring, while calves are rearing, before cheesemaking com-

mences; but during summer: owing to the SPECIES OF CHEESE, which is universally made, here; and which is, I believe, peculiar to the vale of Glocester. It is called "two-meal cheese." The evening's meal is set for cream; and, being skimmed, in the morning, is added to the morning's meal, neat from the cow.

The method of making butter, in this district, therefore, merits a description, in detail; especially as GLOCESTER BUTTER,—which is distributed, by hucksters, to distant parts of the country, bears a superior character. The stages of the art are,—

1. Setting the milk.
2. Preserving the cream.
3. Churning.
4. Making up the butter.
5. Markets.

1. SETTING THE MILK. This I have seen done, in different ways: every district exhibits good and bad management, in almost every department of rural affairs. The best method of setting milk, in this country, which I have seen, and which may, I believe, be called the best practice of the district, is this.—

The milk having remained in the cooler, a time proportioned to the heat of the weather, so as to lower it to about 80° of Fahrenheit's thermometer; it is parcelled out, in "skeels:" or, if these are not sufficiently numerous to receive it, in any other dairy vessel;—leaving perhaps, a part of it in the cooler;* dividing it, in such a manner, as to leave it about an *inch deep*, in each vessel: the dairywoman measuring the depth, by the joint of her finger; and carefully placing the vessels level; so that one side be not left deeper than the other. The prevailing rule is *to set it as shallow as it can be conveniently skimmed*; under a conviction, that the shallower it is set, the more cream will rise, from a given quantity of milk. An inch and a half is the ordinary depth; but, in the practice I am more particularly registering, the dairywoman has sufficient dexterity of finger, to skim it at an inch deep. This, however, could not be done, without the assistance of a *tin skimming dish*; which, being thinner, gathers up

* MILK-LEADS are not common, in this district. I have, nevertheless, seen some very old ones in use: a circumstantial evidence, that their use has been long *known* in this district.

the cream, cleaner, than a wooden one; but requires a more steady hand to guide it.

2. PRESERVING THE CREAM. Earthen jars are the common receptacles of cream. —In these, it is *stirred*, several times a day, with the "cream slice;" but seems to be *shifted*, less frequently, here, than in some other dairy countries. Cream, here, has a peculiar propensity to become "curdy;" losing its liquid state; requiring some strength of hand to stir it; arising, probably, from its superior richness.*

3. CHURNING. In the practice, which I more particularly attended to, the business of churning is conducted, in this manner: —If the weather be hot, the churn is previously cooled, with cold water; and, if wanted, cold water is likewise put into the churn, among the cream. On the contrary, if the weather be cold, the churn is warmed,

* COLORING BUTTER. In autumn, when butter generally becomes pale and tallow-like, the cream is not unfrequently *colored*, before it be put into the churn. The material of coloring is the same as that used, in the coloring of cheese; which will be spoken of in the next article. The method of using it, however, is somewhat different.

with scalding water; and, if wanted, hot water is put into the churn; which, perhaps, in severe weather, is placed near the fire, during the operation.

The cream of the vale is very liable to rise in the churn; owing, probably, to its peculiar richness. Under this circumstance, part of it is taken out; and, when that which is left in the churn is gone down again, the part taken out is re-added.

The mouth of the churn is secured with butter, pressed plasterwise into the joints.—This is thought to be less troublesome than a cloth.

The *breaking* is here carefully attended to. It is considered as very injurious to heat the butter in the churn.

4. MANUFACTURING BUTTER. In making up butter, the first business is to prepare the several utensils, employed in the operation.—Here, they consist of the "butter skeel"—the "butter board"—the "print" and "trowel." The preparation, required, is to prevent the butter from hanging to the wood. It is here done, with scalding water, and *salt* brushed into the wood, while moist and hot, with a soft thick-

set brush: either putting the salt upon the brush, or dusting it over the utensil; which, being salted, is immediately plunged into cold water. The dairywoman's hands are prepared in a similar manner.

I will give the minutiæ of this operation, as performed by a most excellent dairywoman; whose butter seldom fails of being of the first quality. They differ from those, which I have already given;* and are, probably, the best which I may have an opportunity of observing; and probably the last, upon which I may bestow the *tediousness* of registering.

The butter being taken out of the churn, and placed in the "skeel," with a quantity of cold clear water,—the dairywoman breaks off a lump, (somewhat more than a pound) and, with one hand, kneads it in the water, *with the fingers spread widely abroad*; closing them, at intervals; thereby breaking the butter most effectually; consequently, giving the contained milk an opportunity of escaping. Every time the fingers are closed, the lump is rolled on the bottom of the skeel, and the hand shifted; taking the

* See NORFOLK—MIN: 109.

lump the contrary way, and working it as before. This being several times repeated, the first roll is placed upon the butter board, and a fresh lump broken off.

The whole being gone over, in this manner, the milky water is poured out (into the tub of butter milk*) the skeel washed, and somewhat more than half the butter spread, thinly and evenly, but *roughly*, over the bottom of it. SALT is then dusted upon this rough surface; the remaining lumps of butter spread over the salt; and, over the whole, another portion of salt is strowed.

The dairywoman now rolls the whole into one lump; which she immediately breaks down, with the palm of her hand, and with the fingers expanded as before; forcing the butter from her; closing the

* BUTTER MILK is here acidulated, for the hogs; being mixed among the whey, which is also given to the hogs stale and sour: not, I believe, as a matter of choice, which is studied; but as a matter of conveniency.

In winter, when butter milk is sweet, it is sometimes run, among other milk, for "family cheese;" and affords a considerable quantity of curd; but it makes what is called a "bitter mess," and the running of it, is, I understand, considered as a mean sort of saving.

fingers, partially, at every stroke; thereby leaving it at the bottom of the skeel, *exceedingly rough.*

Over this rugged surface, fresh water is poured; the butter rolled up, again, into one large lump; again broken down, in the manner last described: and again formed into one large roll. This is, at length, broken into pound lumps; and kneaded in the water, as in the first instance.

The butter is, now, a second time upon the butter board, (over which water is always thrown before the lumps be placed upon it) and the skeel being emptied of the briny water, the lumps are separately kneaded (with one hand) on the bottom of it, *dry*; and set in short rolls, against the side of the skeel.

The butter scales are then taken out of the salt water, which was poured out of the skeel, and in which they have been immersed during the last operation, and evenly balanced with butter; the lumps divided; and weighed in *half-pound pieces:* which are again returned into the skeel; or, for want of room, are placed upon the board.

This being effected, the lumps are pre-

pared for *printing*; by kneading them, dry, at the bottom of the skeel; and moulding each into a conical form; with the palm of the hand, and with the fingers joined, and set at right angle to the palm. The point of the cone-like lump thus formed, being placed in the center of the print, the base is pressed down, until the surface of the print be covered. What presses over, at the edges, is collected, (by running the finger round the print,) and put upon the intended bottom of the pat. The sides are finally smoothed, with the trowel; the pat with the print set upon the butter board; and the print taken off: leaving the pat about four inches diameter, and about one and a half inch thick.*

* BUTTER GAUGE. A cubical inch of well wrought butter weighed 230 grains; or somewhat more than half an ounce avoirdupois. Therefore a pound, avoirdupois, of well wrought butter contains somewhat more than thirty cubical inches (30.4). And the standard pound of this district (18 oz.) measures more than thirtyfour inches (34.25). The half pound somewhat more than seventeen inches. Hence, a half pound print or pat of butter, exactly four inches in diameter, ought (if well worked and honestly weighed) to measure exactly 1.3628 inches in depth.

A measure, of some regular figure, as a cube, accurately formed, on these principles, would be the best

If the print does not "loose" freely, the hand is placed, carefully and firmly, against the side of the pat; thereby gaining a degree of purchase, to pull against. If the butter be found to adhere, in any degree, to the wood, the print is scalded, salted, and brushed, until it loosen freely; without the indelicacy of blowing, in the manner practised in most places. The pats remain, some length of time, generally one night, upon the board, to stiffen; and, in the morning, are placed in cold water, previous to their being put into the baskets, in which they are carried to market.

5. MARKETS. The butter markets, of the upper vale, are chiefly *Glocester*, *Cheltenham*, *Tewkesbury*, and *Evesham*. That of Glocester is the largest and the *neatest* butter-market, I have anywhere observed.

standard for a market inquest; as it would not only check the weight; but the purity of the butter also: provided due care were observed, in pressing it closely into the gauge; thereby freeing it from the redundant moisture, which dairywomen, who are skilful and honest, extract before they take it to market; but which the slovenly, and the designing, sell at the price of butter. See NORFOLK,——MIN: 109.

The butter is brought in half-pound pats or prints, *packed up* in square baskets, in a manner which merits description.

The baskets are invariably of one form, namely: the long cube; with a bow handle across the middle; and with two lids, hingeing upon a cross piece, under the bow. The dimensions, of an ordinary basket, are 18 by 14 inches within; and about 10 inches deep. This basket holds twelve prints (four by three) in one layer or tire. When the butter is firm, three layers or 18*lb.* are put in each basket; when soft, two tires or 12*lb.* One, of a larger size, measures 18 by 23 inches, within; carrying twenty half pounds in each tire; or 30*lb.* in the three tires. The basket is put into a kind of wallet; with generally a smaller basket, or other counterpoise, at the opposite end of the wallet; which being strapt tightly to the saddle (judiciously made for this purpose) with the heavy end on the off side of the horse, the dairymaid mounts, and, with her own weight, preserves the balance. The basket being lashed on in such a manner as to ride perfectly level, the prints are preserved from bruising.

In summer, the butter is constantly packed in green leaves: generally, in what the dairywomen call "butter leaves:" namely, the leaves of the *Atriplex hortensis*, or garden orach; which dairywomen, in general, sow in their gardens, annually, for this purpose. They are sufficiently large; of a fine texture; and a delicate pale-green color. For want of these, vine leaves, and those of kidney beans, &c. are used.

In packing a butter basket, the bottom is bedded with a thick cloth, folded two or three times. On this is spread a fine thin gauze-like cloth, which has been dipped in cold water; and on this is placed the prints; with a large leaf beneath, and a smaller upon the center of each. The bottom tire adjusted, a fold of the cloth is spread over it, and another tire set in, in a similar manner. At market, the cloth is removed; and the prints, partially covered with leaves, shown in all their neatness. The leaves are useful, as well as pleasing to the eye. They serve as guards to the prints. The butter is taken out of the basket, as well as put into it, without being touched, or the prints disfigured.

III. CHEESE. The art of making GLOCESTERSHIRE CHEESE was, originally, one of the principal objects which induced me to make choice of Glocestershire, as a STATION. My practice in Norfolk * had shown me, that, in the quality of cheese, although much may depend upon SOIL and HERBAGE, much is certainly due to MANAGEMENT.

GLOCESTERSHIRE has long been celebrated for its excellency in this art: and where shall we study an art, with so much propriety, as in the place where it excels? It may be proper to add, that although my own experience had not led me to perfection, it had sufficiently enabled me to make accurate observations, on the practices of others. An ANALYTICAL ARRANGEMENT, of the several departments and stages of the art, was a guard against my suffering any material part to escape my notice; and the THERMOMETER a certain guide, in those difficult passages, in which an accuracy of judgment is, more peculiarly, requisite.

* See RURAL ECONOMY OF NORFOLK. MIN: 108.

The objects of my attention have been

Soils.	Management of the curd.
Water.	
Herbage.	Management of the cheese.
Cows.	
Quality of milk.	Defects and Excellencies.
Coloring.	
Rennets.	Markets.
Method of running.	Produce.

The managements of the two vales under survey differ in one most material article;—the *quality* of the milk. In the lower vale, the milk is run neat from the cow (or nearly so.) In the upper vale, it has been already said, the prevailing practice is, to set the evening's meal for cream; in the morning to skim it; and then to add it to the new milk of the morning's meal. The cheese made from this mixture is termed "TWO-MEAL CHEESE:" that from the neat milk, "one-meal cheese" or "BEST MAKING."

Besides this difference in produce, or SPECIES OF CHEESE, there are other differences, in the practices of the two vales. It will, therefore, be proper to register them, separately; lest, by mixing them, the perspicuity, which is requisite, in describing

the minutiæ of an art so complex, and so difficult, as this under consideration, should be destroyed.

Of the UPPER VALE the *soil*, the *herbage*, and the *cow*, have been already mentioned: the subjects which remain to be noticed, in this place, are

1. The season of making.
2. The quality of the milk.
3. Coloring.
4. Rennets.
5. Running.
6. Management of the curd.
7. Management of the cheese.
8. Markets.
9. Whey butter.

1. THE SEASON OF MAKING. From the beginning of May, to the latter end of October, including seven months, may be considered as the season of cheesemaking, in this district.

2. THE QUALITY OF THE MILK. The mixture for two-meal cheese has been mentioned, in general terms, to be one part skim milk (namely milk which has stood *one* meal for cream) and one part new milk, *neat* from the cow. But *this* is seldom, I apprehend, strictly the case. A little *fraud*

is, I am afraid, generally practised. A greater or less proportion of the morning's meal is set for cream, and returned the next morning to the cheese cowl,—*robbed* of its better part. This is a trick played upon the cheese factor: but he being aware of the practice, little advantage, probably, is gained by it. However, where the soil is superiorly rich, a small proportion may be "kept out," and the cheese, nevertheless, be of a *fair* quality.

3. COLORING. This is another *deception*, which has long been practised by the Glocestershire dairywomen, and which, heretofore, probably, they carried on exclusively. The coloring of cheese, however, is now become a practice in other districts.

The artifice, no doubt, has arisen, from the Glocestershire dairywomen having observed, that, on some soils, and in some seasons, cheese naturally acquires a yellow color; and such cheese having been found to bear a better price, (either from its intrinsic quality, or because it pleased the eye better) than cheese of a paler color, they set about *counterfeiting nature*;

and, in the outset, of course, found their end in it.

There is some difficulty, however, in this, as in other cases, to copy nature, exactly. Much depends on the material; and something on the method of using it. If the coloring material be improperly chosen, or injudiciously used, the color appears in streaks, and instead of pleasing the eye, offends it. On the contrary, with a suitable material, properly used, the artifice may be rendered undetectable.

The material which has at length obtained universal esteem, and which, I believe, is now, almost invariably, used, is a preparation of ANNOTTA; a drug, the produce of Spanish America. It is brought to England (for the use of the dyers, principally, I believe) under the appearance of an earthy clay-like substance; but is well known to be a vegetable production.*

* ANNOTTA is the produce of *Bixa Orellana* of Linneus. Miller describes the plant and its propagation. It is a tallish shrub, somewhat resembling the lilac. The coloring material is the pulp of the fruit; among which the seeds are bedded, in a manner somewhat similar to those of the rose, in the pulp of the hep. It is a native

It has been tried as a coloring of cheese, in its genuine state; but without success. The PREPARATION, which is here used, is made by druggists, both in London and in the country; and is sold, at the shops, in Glocester and other towns of the district, in rolls or knobs of three or four ounces each. In color, and contexture, it is not unlike well burnt red brick. But it varies in appearance and goodness: the hardest and closest is esteemed the best.*

The method of using it is this. A piece of the preparation is rubbed against a hard smooth even-faced pebble, or other stone; the pieces being previously dipped in the milk, to forward the levigation, and to collect the particles as they are loosened. For this purpose, a dish of milk is generally placed upon the cheese-ladder; and, as the

of the West Indies, and the warmer parts of America: Annotta Bay in Jamaica takes its name from this shrub. The pigment, it is said, was formerly collected in Jamaica: but has of later years been brought there (in seroons, or bags made of undressed hides) from the Spanish settlements.

* With respect to the *crime* of coloring cheese, I say nothing in this place: as I shall have a better opportunity of speaking of it, when the VALE OF BERKELEY becomes the subject of notice.

stone becomes loaded with levigated matter, the pieces are dipped in the milk, from time to time; until the milk in the dish appear (from daily practice) to be sufficiently colored.

The stone and the "coloring" being washed clean in the milk, it is stirred briskly about in the dish; and having stood a few minutes for the unsuspended particles of coloring to settle, is returned into the cheese cowl; pouring it off, gently, so as to leave any sediment, which may have fallen down, in the bottom of the dish. The grounds are then rubbed, with the finger, on the bottom of the dish, and fresh milk added; until all the finer particles be *suspended:* and in this the skill in coloring principally consists. If any fragments have been broken off in the operation, they remain at the bottom of the dish: hence the superiority of a hard closely textured material, which will not break off or crumble in rubbing.

The price of annotta is about tenpence an ounce; which will color about twenty thin cheeses (10 or 12 pounds each). The coloring, therefore, costs about a halfpenny a cheese.

4. RENNETS. Rennets are here learnedly spoken of,—by those who are superficially acquainted with their use. Experienced dairywomen, however, speak modestly on the subject: what they principally expect from rennet is the *coagulation* of their milk; having little faith in its being able to *correct* any evil quality which the milk may be possessed of.

The universal *basis* is the stomach of a calf; provincially a "vell;" from which an extract is drawn, in various ways; according to the judgment or *belief* of the dairywoman.

1. The *curing of the vell*,—namely, the cleansing and pickling,—is generally done to their hands. Besides the internal supply, London and Ireland furnish this country with great numbers of vells; which are brought in casks, in pickle, and sold by the grocers and other shopkeepers. The price of English vells is about sixpence, a piece, —of Irish, about fourpence; these being comparatively small.*

2. *Preparation of the rennet.* In the dairy

* Some of them, it is apprehended, are "lambs' vells."

which I more particularly attended to, in the upper vale, the rennet underwent no *established* mode of preparation. The *prevailing* method is this: some *whey* being *salted*, until it will bear an egg, is suffered to stand, all night, to purge itself: in the morning it is skimmed, and racked off clear: to this is added an equal quantity of *water-brine*, and into this briny mixture is put some sweet briar, thyme, hyssop, or other "sweet herbs;" also a little black pepper, saltpetre, &c.; tying the herbs in bunches, and letting them remain in the brine, a few days. Into about six quarts of this liquor, four English vells, or a proportionate number of Irish ones, are put; and having lain in it, three or four days, the rennet is fit for use. No part of the preparation is boiled, or even heated: and, frequently, no other preparation whatever is used, than that of steeping the vells in cold salt and water. Indeed, in another dairy, which I had an opportunity of observing, in the upper vale, no other mode of preparation was used; and few, if any, dairies make better cheese: I speak from my own knowledge.

Therefore, from the evidence which I

have collected, in the upper vale, it appears, that, provided the *vells* be duly *prepared*—be thoroughly cleansed and cured—no subsequent preparation of *rennet* is necessary. Nevertheless were I to recommend a practice, in this case, it would be that of doing away the natural *faint* flavor of the vells, by some aromatic infusion. But I should prefer *spices* to *herbs* for this purpose.

5. RUNNING. In this, as in every other stage and department of cheesemaking, there are *shades of difference*, in the practices of different dairywomen. No two conduct the business exactly alike; nor is the practice of any individual uniform. There are, at present, no fixed principles to go by. Every thing is left to the decision of the senses; uncertain guides. Nevertheless, *practice*, carried on with attention, and assisted by good natural abilities, will do much; though it cannot, alone, attain that degree of perfection, which, when joined with *science*, it is capable of reaching.

The mistress of the dairy, whose practice I am more particularly registering, has both natural and acquired advantages,

which render her dairy, though not of the first magnitude, a proper subject of study. Her father was possessed of the best breed of cows in the vale, and was one of the largest dairy farmers in it. Her mother, the first among its dairywomen; and herself possessed of that *natural cleverness*, without which no woman, let her *education* be what it may, can conduct, with any degree of superiority, the business of a cheese dairy.

In giving a detail of my own practice, in Norfolk, I mentioned some known principles of coagulation; as well as some received opinions of dairywomen, respecting the nature of this process. The same opinions are held in this district; in which some other received ideas prevail: namely, that the quantity of curd is in proportion to the length of time of coagulation; there being "the least curd when longest in coming."

That setting the milk, hot, inclines the cheese to "heave:" (a defect which will be spoken to hereafter.)

And that lowering the heat of the milk, with cold water, has a similar effect.

To give some idea of the practice of the upper vale, in this most delicate stage of the art, I will detail the observations made, during five successive mornings, in the dairy which has been spoken of.

Tuesday, 2 September, 1783. The quality of the milk, that which has been described. Part of the skim milk added cold,—part warmed, in a kettle, over an open fire, to raise the whole to a due degree of heat. Colored in the manner described. An estimated sufficiency of rennet added. The whole stirred and mixed evenly together. The exact heat of the mixture 85° of Fahrenheit's thermometer. The morning close and warm, with some thunder. The cheese-cowl covered;—but placed near an open door. The curd, nevertheless, came in less than forty minutes: much sooner than expected: owing, probably, to the peculiar state of the air. The retained heat of the curd and whey, when broken up and mixed evenly together, 82°. The curd deemed too tough and hard; though much the tenderest curd I have observed.

Wednesday, 3 September. The morning moderately cool. The heat of the milk

when set $89\frac{1}{2}°$ The cowl partially covered, and exposed to the outward air, as before. Came in an hour and a quarter. The heat of the curd and whey, mixed evenly together, 80°. But at the top, before mixing, only 77°. The curd extremely delicate, and esteemed of a good quality.

Thursday, 4 *September*. The morning cool—a slight frost. The milk heated, this morning, to 88°. The cowl more closely covered; and the door shut part of the time. Set at half past six: began to come, at half after seven: but not sufficiently firm, to be broken up, until eight o'clock: —an hour and a half. The whey, when mixt, exactly 80°! The curd exceedingly delicate.

Thus, it would seem, it is not the heat of the milk when it is run, but the heat of the whey, when the curd is sufficiently coagulated, which gives the quality of the curd. My own practice led me to the same idea. And the Glocestershire dairywomen, by their practice, seem fully aware of the fact. As autumn advances, the heat of the milk is increased; and as the given morning happens to be warm or cool,

the degree of warmth of the milk is varied.

Friday, 5 September. This morning, though mild, the curd came exactly at 80°! What an accuracy of judgment here appears to be displayed! Let the state of the air be what it will, we find the heat of the whey, when the curd is sufficiently coagulated, exactly 80°; and this, without the assistance of a thermometer, or any other artificial help. But what will not daily practice, natural good sense, and minute attention accomplish.

Saturday, 6 September. This morning, the curd came too quick. The heat of the whey (after the curd had been broken and was settled) full 85°! The curd "much tougher and harder than it should be." Here we have a proof of the inaccuracy of the senses; and of the insufficiency of the natural judgment, in the art under consideration: it may frequently *prove to be right*; but never can be *certain*. Some scientific helps are evidently necessary to UNIFORM SUCCESS.

6. THE MANAGEMENT OF THE CURD. This stage of the process has five distinct operations belonging to it.

1. Breaking.
2. Gathering.
3. Scalding.
4. Vatting.
5. Preserving spare curd.

1. *Breaking.* Here, new ideas arise.—The curd while suspended in the whey, is never touched with the hands.* The curd is broken, or rather cut, with the triple "cheese knife," which has been described. This mode of separating the curd and whey, though not universal, appears to be highly eligible: the intention of it is that of "keeping the fat in the cheese:" a matter which, in the manufacture of two-meal cheese, is of the first consideration. The operation is performed in this manner.

The knife is first drawn, as deep as it will reach, across the cowl, in two or three

* In another dairy, however, whose manager ranks high among dairywomen, the curd is broken with the hands, alone; in the manner described in NORFOLK.

places; and likewise round by the sides; in order to give the whey an opportunity of escaping, as clear as may be. Having stood five or ten minutes, the knife is more freely used; drawing it briskly in every direction, until the upper part of the curd be cut into small chequers. The bottom is then stirred up with the dish, in the left hand; and, while the lumps are suspended in the whey, they are cut with the knife, in the right: thus continuing to stir up the curd with the dish, and separate the lumps with the knife, until not a lump, larger than a bean, is seen to rise to the surface.

2. *Gathering.* The curd having been allowed about half an hour to settle in, the whey is laded off, with the dish; passing it through a hair sieve into some other vessel.

The principal part of the whey being laded off, the curd is drawn to one side of the cowl, and pressed hard with the bottom of the dish: the skirts and edges cut off with a common knife, and the cuttings laid upon the principal mass; which is carried round the tub, among the remaining whey, to gather up the scattered fragments that lie among it. The whole being col-

lected, the whey is all laded or poured off, and the curd left in one mass, at the bottom of the cowl.

3. *Scalding*. It is, I believe, the invariable practice of the dairywomen of Glocestershire, to *scald the curd*.* This accounts for their running the milk so comparatively cool. Were the delicate cool-run curd, of this district, to be made into cheese, without being previously scalded, the cheeses made from it would require an inconvenient length of time to fit them for market.

The method of scalding the curd, here, varies from that mentioned in the Minutes, in Norfolk. There, it was scalded in the mass; pouring hot water over the surface, as it lay at the bottom of the cheese tub: but, here, the mass is broken; first by cutting it into square pieces with a common knife; and then reducing it, with the triple knife, into small fragments; mostly as small as peas: none of them is left larger than a walnut: and among these fragments, the "scalding stuff" is thrown; stirring them briskly about; thereby effectually mixing them together; and, of course scalding

* See NORFOLK——MIN: 108.

the whole as effectually, and as evenly, as this method of scalding will admit of.

The *liquid* made use of, here, for scalding curd, varies in different dairies. Some dairywomen scald with *whey*; violently objecting to water; while others use *water*; objecting, with equal obstinacy, to whey: while dairywomen in general, I believe, mix the two together.*

The *quantity* is in proportion to the quantity of curd: enough to float the curd; and make the mixture easy to be stirred about with the dish.

Part of it is heated to near boiling heat; and this is lowered, with cold liquid, TO A HEAT PROPORTIONED TO THE STATE OF THE CURD: soft curd is scalded with hot, hard curd with cooler liquid.

In scalding, therefore, the dairywoman has a remedy, for any misjudgment her sense of feeling may have led her into, in the stage of coagulation: let the curd come too soft or too hard, she can bring it to the desired texture, by the heat of the scalding

* It seems to be understood, that different grounds require different kinds of scalding liquor.

liquor. And here seems to hinge, principally, the superior skill of the Glocestershire dairywoman: by running the milk cool, she can, in scalding, correct any error which has been committed in running.

Saturday, 6 September. This morning, the curd being too tough, the *whey* was used cooler than it was, yesterday morning, when the curd was sufficiently tender. (See page 299.) Yesterday morning, 140°, this morning, 125°.

Tuesday, 9 September. This morning, the curd came at its proper heat 80°, and the heat of the scalding whey was 142°.

The curd being thoroughly mixed and agitated among the whey, and having had a few minutes to subside in,—the dairymaid began immediately to lade off the whey. This, however, is not the universal practice: in some dairies, the curd is suffered to remain among the scalding liquor, half an hour: thus (as has been observed) there are *shades of difference* in every stage of the process.

Wednesday, 24 Sept. This morning, the curd came too tender; and, the morning being cool, the scalding whey was heated

to 161°, and stood upon the curd, near ten minutes: this changed it from a state of jelly, as to softness, to the same tough hard mass it is always left after scalding.

4. *Vatting.* The scalding liquor being mostly laded off, a vat is placed on the cheese ladder, laid across the tub, and the curd crumbled into it, with the hands, scrupulously breaking every lump; squeezing out the whey, as the handfuls are taken up; and again pressing it with the hands in the vat; which is, from time to time, set on-edge, to let the whey run off.

The vat being filled, as full and firmly as the hand alone can fill it, and rounded up high in the middle, a cheese cloth is spread over it, and the curd turned out of the vat into the cloth; the vat washed, or rather dipped in the whey, and the inverted mass of curd, with the cloth under it, returned into the vat. The angles, formed by the bottom of the vat, are pared off, and crumbled upon the top, with which they are incorporated by partially breaking the surface, and rounding up the middle as before; the cloth is then folded over, and

tucked in; and the vat, with its contents, placed in the press.*

5. *Spare curd.* Preserving the overflowings of the last vat of today's curd, to be mixed up with that of tomorrow, is a common practice in this country; where cheeses, if they be intended for the factors, are obliged to be made of some certain size. The vats are all nearly of the same bigness; and cannot be proportioned to the curd, as they may, where vats of various sizes are made use of.

In the neighbourhood of Glocester, when the quantity of spare curd is considerable, as four or five pounds, it is frequently made into a small cheese, for the Glocester market; in which it may be sold, in a recent state, (namely at three weeks to two months old,) for 2*d*.$\frac{1}{2}$ to 3*d*.$\frac{1}{2}$ a pound; according to its age: three pence, a pound, is the

* It is observable, that only one CHEESEBOARD is used, in the Glocestershire dairies, let the number of vats be what they may. The bottoms of the vats, being made smooth and even, answer the purpose of cheeseboards to each other——the uppermost, only, requiring a board. No "sinking boards" are ever made use of, here, as they are in other districts; the vats being rounded up with curd in such a manner, as, from experience it is known, will just fill them when sufficiently pressed.

ordinary price, for such little two-meal cheeses.

When the quantity of spare curd is small, or where the making of little cheeses is not practised, the whey is pressed out, and drained off, as dry as may be, and the curd preserved in different ways. In the upper vale, I have seen it put into an earthen vessel, and covered with cold water. The next morning, it is rescalded thoroughly, once or twice; broken as fine as possible; and either mixt evenly with the fresh curd; or, less eligibly, put into the middle of a cheese. *This*, however, is, with good reason, objected to by the factors. A harsh, crumbly ill tasted seam is formed in the middle of the cheese; a disagreeable circumstance, which, is too frequently met with. Mixing the stale curd, more evenly, among the fresh, has an effect almost equally disagreeable: the particles of stale curd ripen faster than the rest of the cheese; which is thereby rendered unsightly and ill flavored.

In a small dairy, it is impossible to make cheeses sufficiently *sizeable*, for the Glocestershire factors, and, at the same time, to avoid having, frequently, spare curd. But,

in a large dairy, where three or four cheeses are made from one running, it might, by a proper number and assortment of vats, be generally avoided; and the cheeses be at the same time made within size.

7. THE MANAGEMENT OF THE CHEESES. This requires to be subdivided, agreeably to the different stages of management.

1. The management in the press.
2. The management while on the dairy shelves.
3. The operation of cleaning.
4. The management in the cheese chamber.

1. *The management while in the press.* Having stood some two or three hours in the press, the vat is taken out; the cloth pulled off and washed; the cheesling turned into the same cloth and the same vat (the cloth being spread under and folded over as before,) and replaced in the press.

In the evening, at five or six o'clock, it is taken out of the press again, and *salted*, in this manner: the angles being pared off, if wanted, the cheesling is placed on the inverted vat; and a handful of salt rubbed hard round its edge; leaving as much salt

hanging to it as will stick. Another handful is strowed on the upper side, and rubbed over it pretty hard; leaving as much upon the top as will hang on in turning. It is now turned into the bare vat, that is, without a cloth; and, a similar quantity of salt being rubbed on the other side, is again put into the press.

Next morning, it is turned in the bare vat; in the evening, the same; and, the succeeding morning, taken finally out of the press, and placed upon the dairy shelf.

Each cheese, therefore, stands fortyeight hours in the press. At the second or third, it is turned in the cloth. At the tenth, the cloth is taken off, and the cheesling salted. At the twentyfourth, it is turned in the bare vat. At the thirtyfourth, the same. And at the fortyeighth, finally taken out.*

* SAGE CHEESE. The method of making "green cheese," in this district, is the following. For a cheese of 10 or 12lb. weight, about two handfuls of sage, and one of marigold leaves and parsley, are bruised, and steeped one night in milk. Next morning, the greened milk is strained off, and mixed with about one third

2. *The management on the dairy shelves.* Here, the "young cheeses" are turned every day, or every two or three days, according to the state of the weather, or the fancy or judgment of the manager. If the air be harsh and dry, the window and door are kept shut, as much as may be: if close and moist, as much fresh air as possible is admitted.

3. *Cleaning.* Having remained, about ten days, in the dairy (more or less according to the space of time between the "washings") they are cleaned; that is washed and scraped; in this manner: a large tub of cold whey

of the whole quantity to be run. The green and the white milks are run separately; keeping the two curds apart, until they be ready for vatting. The method of mixing them depends on the fancy of the maker. Some crumble the two together, mixing them, evenly, and intimately. Others break the green curd into irregular fragments, or cut it out in regular figures, with tins for this purpose. In vatting it, the fragments, or figures, are placed on the outside. The bottom of the vat is first set with them; crumbling the white, or yellowed, curd among them. As the vat fills, others are placed at the edges; and the remainder buried flush with the top. The after-treatment is the same as that of "plain cheeses."

being placed on the dairy floor, the cheeses are taken from the shelves, and immerged in it; letting them lie, perhaps an hour or longer, until the rind become sufficiently supple. They are then taken out, one by one, and scraped with a common case-knife, somewhat blunt; guiding it, judiciously, with the thumb placed hard against its side, to prevent its injuring the yet tender rind: continuing to use it, on every side, until the cloth marks and every other roughness be done away; the edges, more particularly, being left with a polished neatness. Having been rinced in the whey, and wiped with a cloth, they are formed into an open pile (in the manner raw bricks are usually piled) in the dairy window, or other airy place, to dry: and from thence are removed into the cheese chamber.

4. *The management in the cheese chamber.* The FLOOR is generally PREPARED, by rubbing it with bean tops, potatoe halm, or other green succulent herbage, until it appear of a black wet color. If any dirt or roughness appear upon the boards, it is scraped off; and the floor swept clean. The cheeses are then placed upon it, re-

gularly, in rows: and kept turned, twice a week; their edges wiped hard with a cloth, once a week; and the floor cleaned, and rubbed with fresh herbs, once a fortnight.

The preparation of the floor is done, with the intention of encouraging the blue coat to rise.* To the same intent, the cheeses are not turned too frequently; for the longer they lie on one side, the sooner the blue coat will rise. If, however, they be suffered to lie too long, without turning, they are liable to stick to the floor, and thereby receive injury. If, by accident, or otherwise, the coat come partially, it is scraped off. This, however, seldom happens, in a rich-soiled country, and all the care and labor requisite, in this stage, as has been said, is to turn them, twice a week; wipe their edges, once a week; and to prepare the floor, afresh, once a fortnight. If the cheese chamber be too small, to admit of the whole being placed, singly, the oldest are "doubled:" sometimes put "three or four double."

It is striking to see how the cheeses of

* See NORFOLK.

this district will bear to be handled, at an early age: even at the time of washing, the dairymaid will frequently set the cheese, which she is scraping, on-edge upon another, and this without injury. At a month old, they may be thrown about as old cheeses. Their rinds appear tough almost as leather. This must be owing to the scalding. It cannot be owing to their poverty. They are evidently richer "fatter" than the new milk cheeses of many districts.

8. MARKETS for CHEESE, in the upper vale. In large dairies, cheese is here sold and delivered, three times a year; namely, in July, again at Michaelmas, and finally in the spring. In small dairies, only twice; about the latter end of September, and again in the spring.

It is bought, principally, by cheese factors, who live in or near the district. The same factor, generally, has the same dairy, year after year; frequently without seeing it, and, perhaps, without any bargain having been made, previously to its being sent in. There is, indeed, a degree of confidence, on the parts of the buyer and seller, which we seldom meet with, among country

dealers. Millers and maltsters buy, by sample, and generally take care to make a close bargain, before the corn be sent in.

In summer and early autumn, the factors will take them down to six weeks old; provided they be found firm marketable cheeses; that is neither broken nor "hove;" —a defect, which even the best dairywomen cannot always prevent. During winter, provided their coats be perforated, to give the internal air an opportunity of escaping, the swoln cheeses are generally found to go down, and in the spring, to become marketable.

The *consumption* of two-meal cheese is chiefly, I believe, in the manufacturing districts of this, and other counties. Some of it goes to the London market; where, probably, it is sold under the denomination of Warwickshire cheese: and some is said to go to foreign markets. The *size* mostly "tens" —that is, ten to the hundredweight; or 11 to 12lb. each.

The *price* of two-meal cheese varies with that of newmilk cheese. At Barton fair, in 1783,* the "best making" sold from 34*s.*

* BARTON FAIR. A fair held, annually, on the 28th of September, in Barton street, Glocester. It has long

(to the factors by the waggon load together) to 36*s.* (to families who bought by the hundredweight). "Two-meal," from 28*s.* to 29*s.* 6*d.* by the cwt. of 112lb. In 1788, "best making" 30*s.* down to 27*s.* "Two-meal" 25*s.* down to a guinea. Prices, which have not been heard of, for many years past.

9. WHEY BUTTER. It is the invariable practice, of this district, to set whey for cream. The lower class of people scarcely eat any other, than whey butter. With due cleanliness, and proper management, it may be made perfectly palatable; and, in every respect, preferable (while quite fresh) to the milk butter of some lean-soiled districts.

The whey is, here, generally set in one

been the principal cheese fair of the district. Formerly, a principal part of the cheese, made in the two vales, was brought to this fair. At present, it is mostly bought up by factors, previously to the fair. In 1783, there were about twenty waggon loads (besides a number of horse loads) exposed for sale, in the fair. Some bought by factors; but principally, I believe, by the housekeepers, and the retail dealers of the neighbourhood. In 1788, the quantity in the market was much greater; about forty loads; cheese being then a drug.

large tub: not parcelled out, thin, like milk.

The management of whey butter is similar to that of milk butter. The price about two thirds of that of milk butter in the same market.

25.

SWINE.

I. BREED. The tall, long, *white* breed, which was formerly, perhaps, the prevailing breed of the island, is here still considered as the "true Glocestershire breed." They grow to a great size.

At present, the *Berkshire* and a cross between these two breeds, are the prevailing species. The Berkshire are thought to be "hardier;" but are objected to, as being thicker-rinded, than the old white sort. A mixture of *oriental* blood, is likewise discoverable, in this district; but less, here, than in any other district I have observed in.

II. BREEDING, &c. Some are bred, in the district: others *purchased*, at Glocester market; probably, the largest swine market in the kingdom. There are seldom less than three or four hundred, in an ordinary market. Most of them large grown hogs: many of them worth from fifty shillings to three pounds, a head. Brought, by dealers, from Herefordshire, Shropshire, &c. Some of the smaller are bought, by dairymen, the larger, by dealers, for the distilleries of Bristol and London.

III. The FOOD of STORE swine is principally WHEY, mixed with BUTTER MILK, and given to them, in a stale acidulated state. This, however, is not invariably observed: it is, not unfrequently, carried to them immediately from the dairy. While young, especially when recently weaned, they have frequently the "sweet whey," immediately from the cheese cowl; without having been previously set for butter.

IV. The PROPORTION OF SWINE to a given number of cows varies, in the upper vale; where dairying and tillage are mixed in various proportions.—The subject is, indeed, in any case a vague one; the *number*

depending on the *size*. The only general rule observed is, to endeavour to have, always, such a *quantity* as the dairy will keep, *well*: it being esteemed bad management to overstock a dairy farm with swine.

V. The MATERIALS OF FATTING are whey, with beans, crushed or whole, or with peabeans; but seldom with peas alone.

VI. The MARKETS FOR BACON are the manufactories of this and the neighbouring counties: the chief, I believe, is the "cloathing country,"—the woollen manufactory, in the Stroudwater district of this county.

LIST OF RATES.

VALE OF GLOCESTER.

BUILDING MATERIALS, &c.

OAK TIMBER 1*s*. to 20*d*. a foot.

Elm ——— 7*d*. to 10*d*. ——

Clamp-burnt bricks 15 to 16*s*. a thousand.

Slag, (copper dross*) 5 or 6*s*. a ton, on the Kays.

* "SLAG." This, I understand, is the *scoria* thrown off by copper, in the process of smelting. Until of late years, it was cast away as useless, or was used as a material of roads only. Now, it is thrown, while hot, into moulds, of different figures and dimensions, and thus becomes an admirable building material. It is proof against all seasons, in every situation; consequently, becomes an excellent material for foundations; and still more valuable for copings of fence walls; for which use it is sometimes cast of a semi-elliptical form. It is also used as quoins, in brick buildings; in which case, the

Stone floors—(laid down) 4*d*. to 5*d*. a square foot.

Lime—6*d*. to 8*d*. a bushel.

Dimensions of bricks 9—$4\frac{1}{2}$ $2\frac{1}{2}$ inches.

———— of plain tiles 12 by $7\frac{1}{2}$ inches.

Journeymen carpenters' wages 22*d*. a day.

———— bricklayers' —— 22*d*. a day.

BLACKSMITHS' WORK.

Common heavy work 4*d*. a lb.

Shoing 5*d*.—Remove 1*d*.

TEAM LABOR.

Hire of a team (waggon, five horses, man and boy) 10*s*.

Price of plowing 6 to 9*s*. an acre.

——— harrowing 2 to 3*s*. an acre.

YEARLY WAGES.

Head man 7 to 9 or 10*l*.

Second man 5 to 7*l*.

Boy 2 to 4*l*.

Dairy maid 3 to 5*l*.

Under maid 50*s*. to 3*l*.

blocks are run about nine inches square, and eighteen inches long. It is of a dark copper colour; and has the appearance of a rich metal; but flies under the hammer as flint.

DAY WAGES.

In winter, 1*s*. a day and drink.

In hay harvest, 14*d*. to 18*d*.—mowers not less than 18*d*. sometimes more, with drink.

In corn harvest, 1*s*. a day, or 30*s*. for the harvest; with full board; or 2*s*. 6*d*. to 3*s*. a day, with drink, but no board.

Women, in autumn and spring, 6*d*. a day; but are seldom employed, by the day, in these seasons; dressing grass lands being generally done by the job.

——, in hay harvest, 6*d*. to 8*d*. a day, and drink.

——, in corn harvest, 1*s*. a day, to those who will work: but women in this country, as in most others, prefer "leasing" to reaping. See YORKSHIRE. Sect. HARVESTING.

TAKEN WORK.

Breast plowing pea stubble, 6*s*. an acre.

Setting beans 16*d*. to 18*d*. a bushel.

Hoing —— about 6*s*. an acre.

Hoing wheat, 2*s*. to 4*s*. an acre.

Reaping wheat, about 5*s*. an acre and drink.

Mowing barley; according to the crop.

Thrashing wheat, 3*d*. to 4*d*. a bushel (9½ gallons.)

——— barley, 2*d*. to 3*d*.

——— beans, about 1½*d*.

Mowing upgrounds 18*d*. and drink.

Mowing meadows 16*d*. to 18*d*.

Agistment price, in the hams, for one horse, *or* two cows, *or* six sheep, 25 to 30*s*. From Mayday to Michaelmas, or later. The hazard of floods may certainly be deemed an additional price: nevertheless, considering the superior quality of the land, it is low in the extreme.

PROVINCIALISMS

OF THE

VALE OF GLOCESTER.

THE VERBAL PROVINCIALISMS of this district appear to be less numerous, than those of many other provinces. I have, however, had less conversation with mere provincialists, in this, than in other districts I have resided in. Besides, it is observable, the lower class of people, here, are less communicative, than they are, perhaps, in any other province: possessing a singular reservedness towards strangers; accompanied with a guardedness of expression, bordering almost on duplicity: affording those who are observant of men and manners, in the lower walks of life, subject for reflection.

WORDS, which relate immediately to RURAL AFFAIRS, I have endeavoured to col-

lect. But I find they are few in number, compared with those collected, in Norfolk, and in Yorkshire, on the same subject. Indeed, a list of technical terms require a length of time, or the immediate superintendance of workmen, to render it complete.

Beside the deviations which are merely *verbal*, this quarter of the island affords, among others, one striking deviation in GRAMMAR;—in the use, or abuse, of the pronouns. The personal pronouns are seldom used in their accepted sense; the nominative and the accusative being generally reversed.——Thus *her* is almost invariably used for *she*;—as "her said so"—"her would do it:" sometimes, *he* for *she*;—as "he was bulled"—"he calved;" and, almost invariably, for *it*;—all things inanimate being rendered masculine.——Beside these and various other misapplications (as *they* for *them*—*I* for *me*, *&c.*) an extra pronoun is here in use;—*ou*: a pronoun of the singular number;—analogous with the plural *they*;—being applied either in a masculine, a feminine, or a neuter sense. Thus "ou wull" expresses either *he* will, *she* will, or *it* will.

This misuse of the pronouns is common to the western counties of England, and to Wales: a circumstantial evidence, that the inhabitants of the western side of the island are descended from one common origin. But, in another striking deviation,—the PRONUNCIATION of the CONSONANTS,—their propensities of speech are so diametrically opposite, (and so different from any tendency of utterance observable in the rest of the island,) one might almost declare them descendants of two distinct colonies.

In Glocestershire, Wiltshire, Somersetshire, &c. the ASPERATE consonants are pronounced with VOCAL POSITIONS: thus *s* becomes *z*; *f*, *v*; *t*, *d*; *p*, *b*, *&c.* On the contrary, in Wales, the consonants, which, in the established pronunciation, are accompanied with VOCAL POSITIONS, are there ASPERATED; hence *z* becomes *s*; *b*, *p*; *d*, *t*, *&c.*;—the mouth of the Severn being the boundary between these two remarkable propensities of speech.

In the PRONUNCIATION of VOWELS, this district, as Yorkshire, has some regular deviation from the established language; but differing, almost totally, from those which are there observable: thus the

a slender becomes *i* or *aoy*; as *hay*, "high" or "aoy;" *stay*, "sty" or "zdoy;" *fair* "fire" or "voir;" *stare* "stire" or "zdoir," &c. The *e* long sometimes becomes *eea*; as *beans* "beeans:" the *i* long, *ey* (the *e* shortened by the *y* consonant); as *I*, "ey;" *ride*, "reyd:" the *o* long changes, here, as in the middle dialect of Yorkshire, into *ooa*; as *home*, "hooam" or "wom;"—the *u* long into *eeaw*; as *few*, "feeaw," *dew*, "deeaw."

There are other deviations, both in grammar and pronunciation; as *be* is generally used for *is*; frequently *do* for *does*; and sometimes *have* for *has*. But those already mentioned are, I believe, the most noticeable, and in the most common use: I therefore, proceed to explain such PROVINCIAL TERMS IN HUSBANDRY, as have occurred to my knowledge in this district.

B.

BLOWS; blossoms of beans, &c.
To BOLT; to truss straw.
BOLTING; a truss of straw.
BRAIDS; pronounced "brides;" see vol. ii. p. 283.
BROWN CROPS; pulse; as beans, peas, &c.
BUTTER LEAVES; see p. 285.

C.

CALFSTAGES; see p. 225.
CARNATION GRASS; *aira cæspitosa;* hassock grass, or turfy air grass; tussock grass.
CHARLOCK; *sinapis nigra;* the common mustard, in the character of a weed.
CHEESE LADDER; see p. 268.
CLAYSTONE; a blue and white limestone, dug out of the subsoil of the vale.
COURT; yard; particularly the yard, in which cattle are penned in the winter.
COW GROUND; cow pasture.
COWL; milk cooler; cheese tub.
CRAZEY; the *ranunculus*, or crowfoot tribe. See note p. 178.
CREAM SLICE; see p. 269.
CUB; a cattle crib.

D.

DAIRYHOUSE, or DEYHOUSE, pronounced DYE-HOUSE; (from *dey* an old word for milk, and *house*); the milk house, or dairyroom.

DILL; *ervum hirsutum*; two-seeded tare; which has been cultivated (on the Cotswold hills at least) time immemorial! principally for hay.

E.

ELBOWS; the shoulder points of cattle.

EVERS (that is heavers); opening stiles. See p. 41.

EVERY YEAR's LAND; see p. 65.

F.

FALLOW FIELD; common field, which is occasionally fallowed: in distinction to "every year's land."

FODERING GROUND; see p. 230.

G.

GREEN; grass land: "all green"—all grass; no plow-land.

GROUND; a grassland inclosure, lying out of the way of floods; contradistinct from "meadow."

H.

HACKLES; singlets of beans: see page 151.

To HAIN; to shut up grass land from stock.

HAIRIF; *galium aperine;* cleavers.

HALLIER; see to HAUL.

HAM; a stinted common pasture for cows, &c.

To HAUL; to convey upon a waggon or cart, as hay, corn, or fuel: proper, but provincial: hence HALLIER; one who hauls for hire.

To HELM; to cut the ears from the stems of wheat, previously to thrashing. The unthrashed straw being called "helm." Not a common practice, here.

HIT; a plentiful crop of fruit.

HOVE; swoln as cheeses.

K.

KNOT; polled; hornless; spoken of sheep and cattle.

L.

To LANDMEND; to adjust the surface, with a spade or shovel, after sowing wheat; chopping the clods, lowering the protuberances, and filling up the hollows.

To LEASE (pronounced leeze) to glean: a term, which is common to the western and southern provinces.

LODE; this seems to be an old word for *Ford;* hence Wain Lode—Upper Lode—Lower Lode—St. Mary de Lode, &c.

LUG, or LOG; a land measure of six yards; that is, a *rod, pole,* or *perch* of six yards; a measure, by which ditching, &c. is done: also the stick, with which the work is measured.

M.

MEADOW; generally, common mowing ground, subject to be overflowed; or any low flat grassland, which has not been plowed, and is usually mown; in contradistinction to "ground" and "ham."

MINTS; mites.

MISKIN; the common term for a dunghill; or a heap of compost.

MOP; a statute, or hiring day for farmers' servants.

MOUNDS; field fences of every kind.

N.

NAST; foulness; weeds in a fallow.

NESH;—the common term, for tender or *washy,* as spoken of a cow or horse.

O.

OXEY; ox-like; of mature age; not "steerish."

P.

PAILSTAKE; see p. 268.

PEASIPOUSE: peas and beans grown together as a crop.

POLTING LUG (that is, perhaps, *pelting rod*) a long slender rod, used in beating fruit off the trees.

Q.

QUAR; the common term for quarry.

R.

RAMMELY; tall and rank, as beans.

RUNNING; rennet; the coagulum used in cheese-making.

S.

SEGS: *carices*; sedges.

To SET; to let, as land, &c.

SETTING PIN; dibble; see p. 144.

SH (without a vowel) gee; in the horse language.

SHARD; a gap in a hedge; the common term.

SHEPPECK; the ordinary name of a prong, or hay fork.

SIDDOW; vulgarly ZIDDOW; peas which become soft by boiling, are said to be "siddow;" a well sounding term, which is much wanted in other districts. "Will you warrant them siddow?" is the ordinary question asked on buying peas for boiling.

SKEEL; see p. 269.

SLAG; copper-dross. See p. 319.

STEERISH; spoken of a young, raw, growing ox; not "oxey."

T.

THREAVE; twentyfour boltings.

TUCKIN; a satchel, used in setting beans, see 144.
TWO-MEAL CHEESE; p. 287.

V.

VELL; a calf's bag or stomach, used in making "running."

W.

WAIN; an ox cart, without side rails.
WHITE CROPS; corn: as wheat, barley, &c.
WITHY; *salix*; the willow.
WUNT; a mole; hence
WUNT HILLOCKS;—mole hills.

Y.

YAT or YATE; a gate. This appears to have been, once, the universal name, and still remains the heraldic term, for a gate.

END OF THE FIRST VOLUME.